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MACFORMAT

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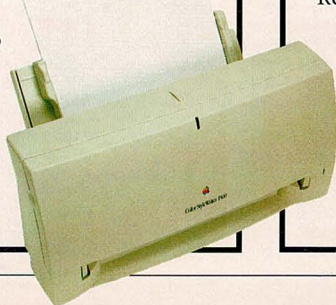


MicroNet Jaz Drive 110

It's as fast as a hard drive and can store a gigabyte of data on every cartridge! We have one of these gorgeous drives, worth over £580, to be won, courtesy of MicroNet.

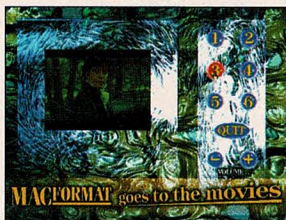
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Your CD-ROM 8

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Your Cover Disk 12

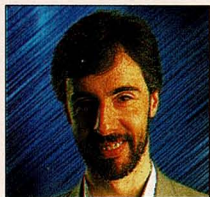
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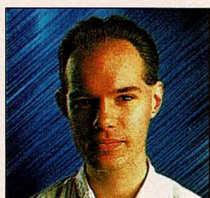
Everything you wanted to know about MACFORMAT, plus the output-related mysteries we'd like cleared up...

ABOUT OUR WRITERS



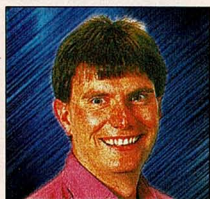
ALEX SUMMERSBY

Our Editor learned all he knows about Macs by using them, but he's still at a loss to explain some of the crashes he's had when trying to print, or error messages he's seen, such as 'This document is OK but cannot be printed.' What kind of perverted definition of 'OK' is that?!



RICHARD HILL

'Fortunately,' says our already-busy News Editor, now Acting Production Editor as well, 'my Mac has far fewer inexplicable errors than my body, which often falls victim to crashes like Type 4X (unable to digest alcohol), Type 00 (missing life) and Type ZZ (unable to get up in morning).'



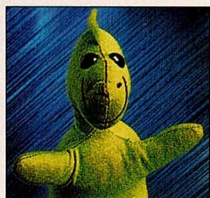
COLIN DALZIEL

What our very practical Disc Editor loves about printers is their unerring ability to leak toner, ink or oily substances all over that lovely white shirt you bought yesterday. Also their uncanny talent for running out of paper at just the wrong time, like when you need that 30-page print-out now.



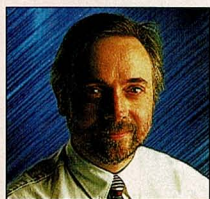
LINDSAY BRUCE

Our Technical Writer's big gripe about printing is oddly enough also the error messages. Instead of 'Printer%%'. A PostScript error occurred' or 'Couldn't initialise printer', he'd like messages that make sense, like 'Could you repeat that please?', or 'Sorry, I am not plugged in.'



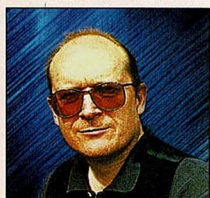
DEREK SMITH

'Why,' asks our Mac boffin, 'can't laser printers take a continuous roll of paper through the manual feed? That way you could print banners! And why does my new 16ppm printer take as long as ever to print a single page? Mind you, the heated rollers are great for ironing my undies.'



ROD LAWTON

Our veteran Mac all-rounder is the poor chump — er, *selected expert* who actually had to test all the printers this issue. What he wants to know is, why *can't* you print pages in random order? And why do manufacturers ship PostScript printers with 2Mb of memory when they need 8Mb?



BRIAN LARKMAN

Our graphics tutorial expert teaches computer art, and what baffles him is why you only get pages failing to print because of corrupted graphics when you have lots of graphics, *never* when there's only one, so it *always* takes half a day to track down what is causing the problem.

ABOUT MACFORMAT

Welcome again to MACFORMAT, Britain's best-selling Macintosh magazine. Every issue we bring you:

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■ **Features** about exciting Mac developments and novel uses, accompanied by Cover Disk programs whenever possible, so you can discover what your machine can do and try things you mightn't have tried before.

■ All the latest Mac-related news, plus all you want to know about the wider issues, the people behind the headlines and the stories behind the stories.

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Whether you're a veteran or a novice, we'll help you get more out of your Macintosh, whatever you use it for.

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■ We make every effort to verify all the information we publish, but products and prices do change. We always quote list prices (RRPs), but street prices do vary. Shop around, and check with the supplier before buying to make sure that the product you're considering will meet your needs. MACFORMAT cannot accept responsibility for any errors or omissions or for any losses that may arise as a result, but it is our policy to correct any errors of fact whenever we possibly can.

ABOUT OUR REVIEWS

Every MACFORMAT review is designed to inform you in detail of what you'd be getting if you bought the product and help you decide whether it's worth your money. It tells you the essentials, without jargon.

MACFORMAT does not review demos or unfinished programs. We review only the finished products you could buy yourself, to help you decide whether to buy or not. We give clear buying recommendations, and rate products on this scale:

- 80+ % means excellent,
- 70+ % means well worthwhile,

though not really outstanding.

- 60+ % means good, but with a few shortcomings or some limitations.
- 50+ % means acceptable but flawed.
- A rating below 50 % means you should think carefully before parting with your money.

The MACFORMAT Classic Award

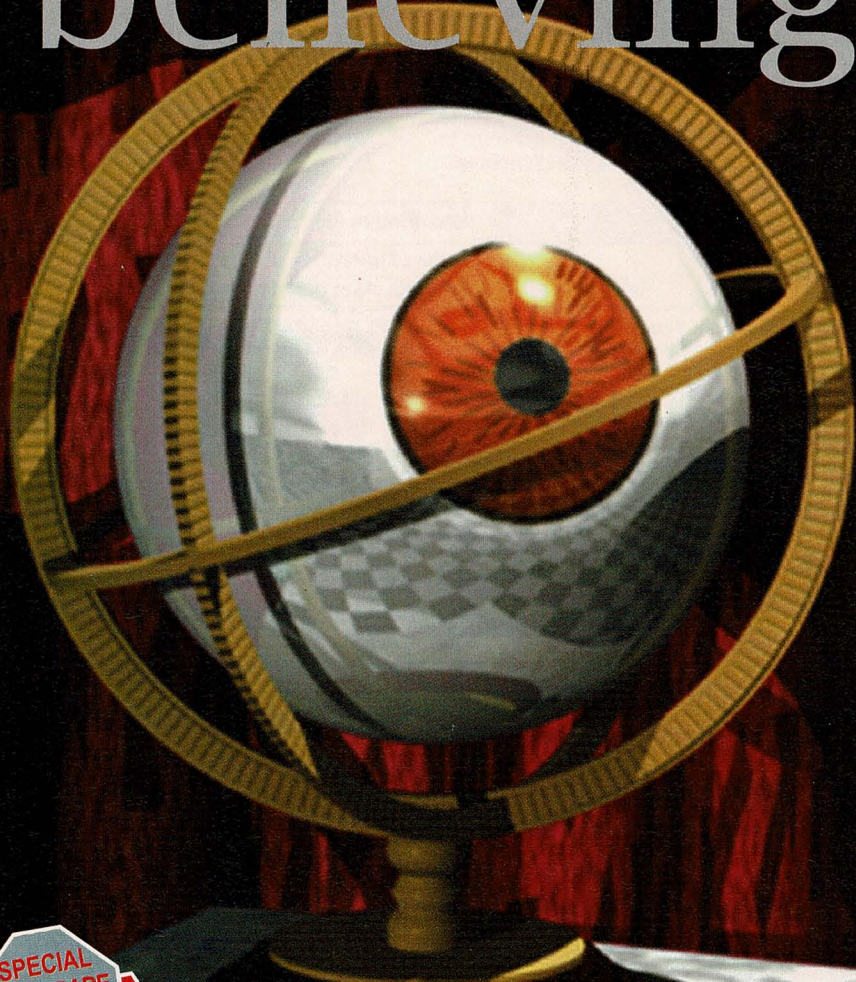
If a product earns a rating of 90% or more, we'll give it a MACFORMAT Classic Award. This means what it says: we judge the product to be a classic, a standard-setter of its type, something really special.





Seeing is believing

Four powerful and easy to use 2D and 3D graphics applications form the basis of the Specular Software Family.



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(Limited period only)
INFINI-D 3.1
£249

Which supports Apple's
new technology:
QuickDraw 3D™
and QuickTime VR™.
This offer is available from
your local dealers

Infini-D 3.1

Infini-D sets the standard for 3D animation and design. Allowing you to quickly add the impact of 3D to any project in either graphic design, illustration, package design, desktop video or multimedia.

Exciting new features include:-

QuickDraw 3D support

Support for the 3DMF file format, both reading and writing. Support for copy and paste to the clipboard and other applications which support the metafile. Interactive rendering in modeller and animation preview modes.

Speed Improvements

Optimization for new PowerPC 604- series chips. Further speed enhancements for 680x0 and PowerPC 601 series machines.

Spline-Based, Path-Profile Modelling

The new modeller allows the creation of advanced, organic shapes, including path extrusion, spirals, and twisted and tapered shapes.

Improved lighting controls

The new Lighting Floater allows immediate manipulation of lights in a scene.

Velocity control

Infini-D provides a sophisticated tool for controlling the velocity of an object's motion over time.

Texture locking in surface composition

This new mapping type allows a surface to conform to an object's motion over time.

Object attribute timelines in the sequencer

Eventmarks can be added and manipulated for the individual attributes of an object, allowing for a much greater degree of animation control.

£547

Collage 2.0.2

The fastest way to compose high-resolution imagery, Collage imports Photoshop™ images and allows you to rapidly combine them into sophisticated compositions. A must for Photoshop™ users.

£91

TextureScape 2.0

The essential texture design and animation tool. Gives an unprecedented amount of control over the creation of synthetic, computer generated images that are tileable and can be rendered and animated at any resolution.

£122

LogoMotion 2.0

LogoMotion allows you to create stunning 3D animations of text and logos. And includes features like lathe and extrude modelling, editable surfaces, texture mapping, atmospheric effects and professional effects.

£109

For more information and details on this great family of products please contact Gomark Design, also for information on Gomark's regular Open Days and Product Demonstrations please contact Jacqui Smith on 0171 731 7930.



GOMARK DESIGN

Gomark Limited
10 Hurlingham
Business Park
Sullivan Road
London SW6 3DU

Tel: 0171 731 7930
Fax: 0171 736 1215

YOUR CD-ROM

Full of glitz and glamour, this issue's Cover CD-ROM comes packed with Oscar winners, sci-fi adventures and much more besides. Colin Dalziel takes you on a guided tour.

This issue's disc is full to the brim with top quality software and demos for you to put to the test. If you're a graphics fan, take a look at the latest version of the high-end graphics software *Live Picture*, otherwise relax with some great games demos in the shape of *X-Wing* and *Bolo* and check out the latest happenings in the fast moving world of multimedia.

We've also got a great collection of demos from new CD-based magazines and a huge shareware section with over 100Mb of the hottest new software, straight from the Internet.

■ **Demos:** the highest quality samplers around, including graphics, games and multimedia software.

■ **MACFORMAT at the Movies:** Hollywood trailers on your desktop.

■ **CW 4.0Bv4 Update:** software to bring your version 4 of *ClariscWorks*

bang up to date.

■ **Shareware City:** over 100Mb of the hottest shareware and freeware, direct from the Internet.

■ **Floppy:** features a special selection of font and printer utilities.

■ **Readers' Corner:** your art and software contributions.

■ **Resources:** essential software no Mac should be without.

■ **MACFORMAT CD Browser:** an interactive guide to what's on this issue's Cover CD-ROM.

■ **Clip photos:** ten high-res clip photographs from the Corel collection.

■ **Tutorials:** all the files you need for the *Apple Media Tool* tutorial on page 52 and the graphics tutorial on page 56 of this issue.

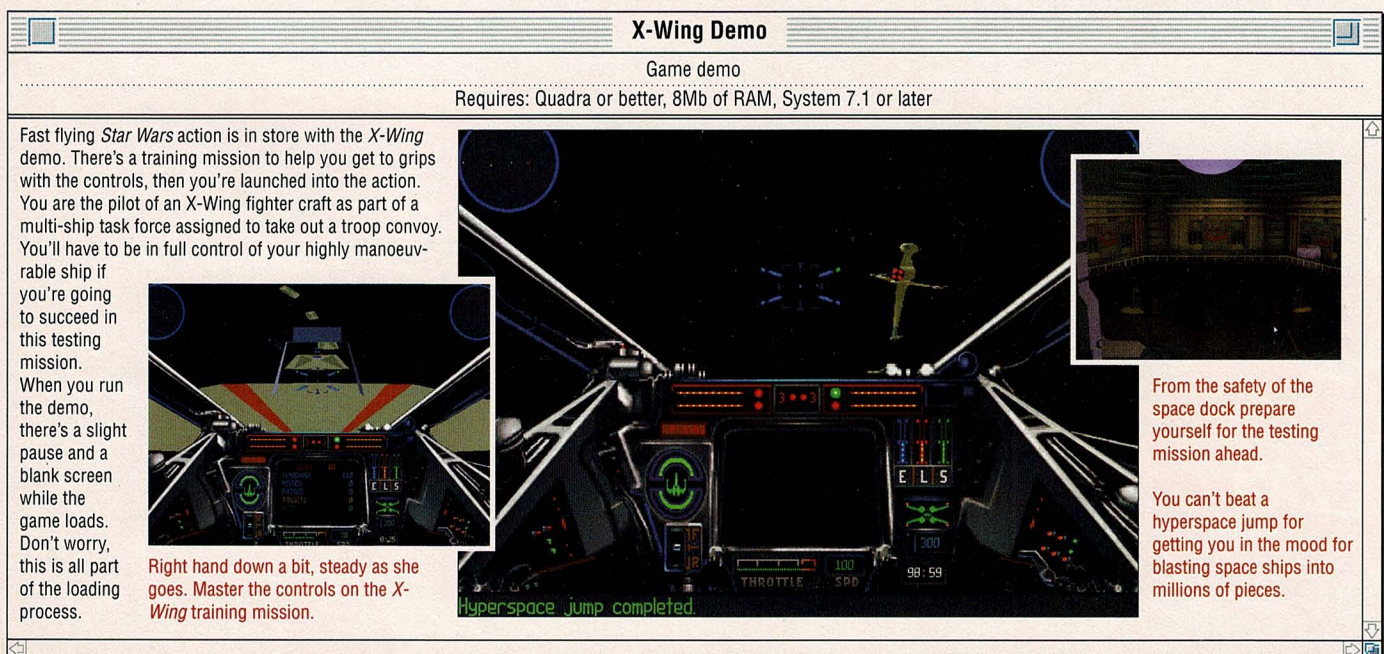
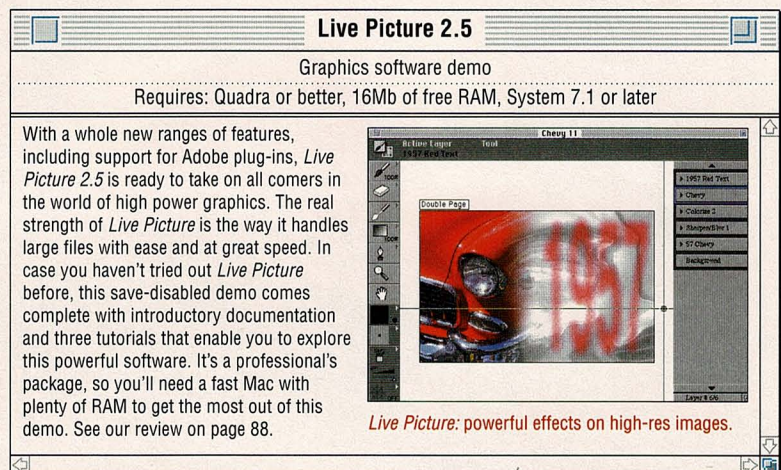
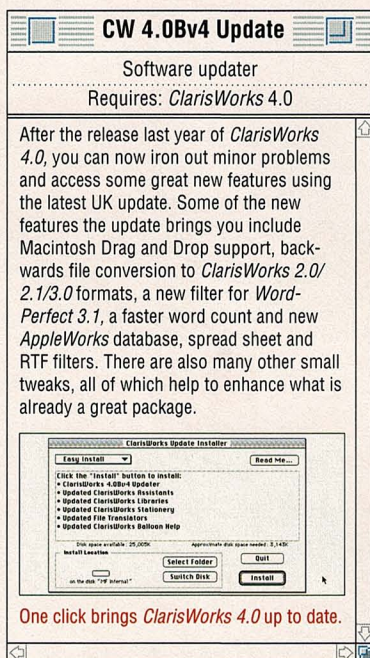
■ **Shareware in MACFORMAT:** all the Shareware reviewed in this issue of MACFORMAT. Turn to page 111 for the reviews and more details.

FLOPPY OR CD?

MACFORMAT is available in two editions: one with a CD-ROM and one with a high-density floppy disk. Details of the floppy programs start on page 12. The CD contains all the software that's on the HD Cover Disk, in a folder called Floppy.

CUSTOM ICONS

The icons we use on the CD help to give it a friendly atmosphere, but they do slow it down. Install *CDIcon-Killer*, which is in the Resources folder on the CD, if you want to speed things up.



MACFORMAT at the Movies

QuickTime video

Requires: LCII or better, System 7.1 or later, QuickTime 2 or later

With the kind permission of Columbia Tristar Pictures, we have put together a series of trailers from some of the latest Hollywood blockbusters. You can view them with our custom video interface, which was assembled using *Apple Media Tool*. If you would like to make your own custom interface, all the files you need are included in the **Tutorials** folder. Full instructions appear on page 52 of this issue. One of the movies doesn't actually come from Hollywood, but it's been a smash hit with movie moguls in the MACFORMAT office!



Stars of the big screen, now showing on a Mac near you.

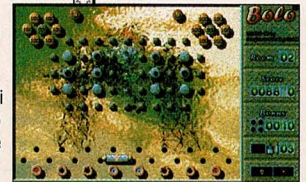
Bolo

Game demo

Requires: LC or better, System 7

From the people who brought you *Oxyd* and *Per-Oxyd* now comes this wonderful implementation of a *Breakout* style game.

Bolo is based on the classic Atari game of the same name. This demo enables you to try out the first three levels of *Bolo* and see what a wonderful job Dongleware has done with the graphics. Unlike similar games, you don't just move a paddle across the bottom of the screen – you can move around the whole area and each level presents different challenges. There is one common feature to all the levels though – gravity sucking holes. Avoid at all costs!



Bolo: a very different kind of bat and ball game. It's actually fun!

Demos

Various

Requires: See individual Read Me files

Brand new multimedia takes centre stage in our demos section. *International Athletics* and *The Art of Singing* are two titles from a new name in the multimedia world – Notting Hill. Both demos are interactive and give you a taste of the quality of these products. See our review of *International Athletics* on page 107.

SFX CD is the first science fiction based CD magazine to hit the market and it gives you detailed information about every thing from *Star Trek* to the *X Files*. This rolling demo gives you a taste of this exciting new title.

Interactive Wave is another CD based magazine, but this time dealing with more Earthly issues. The demo takes you through the contents of the disc in rolling demo style, before letting you loose on a section of the magazine for yourself.

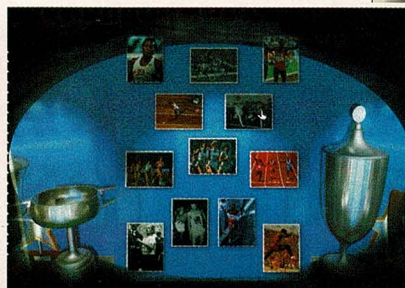
Dorling Kindersley's *History of the World* is a great reference work, bound to be of value to

your CD-ROM collection. Our demo shows you the range of features included in this award winning software, reviewed on page 100.

Rounding off this issue's demos is *Ice & Fire*. This first person shoot-'em-up, reviewed on page 127, will really put you to the test.



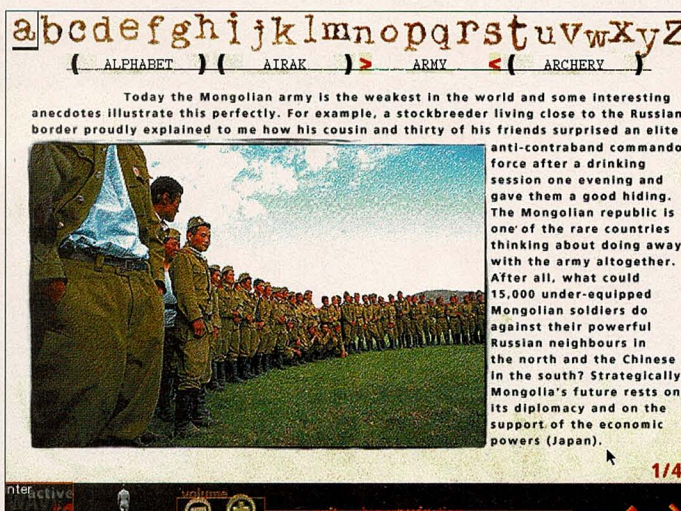
Turn back the clock with the Dorling Kindersley *History of the World* demo.



International Athletics gives you information and video clips from the greats of sport.



All you ever wanted to know about singing. Like how to do it properly – though it can't make you a diva!



Mongolian army troops wait anxiously while the locals are down the pub.

RUN TIME!

Some of the demos on the Cover CD require installation on your hard disk – they won't run direct from the CD. Most of these programs use an installer: once you've double-clicked on it just follow the on-screen instructions and you should be fine. Even if there's no installer, it often helps to copy demos to your hard disk – at the very least they should run faster!

PROBLEMS?

If you have problems quitting any of the rolling demos on the Cover CD, just press **[command] [Q]** and you should go back to the Finder. If this doesn't work, press **[command] [option] [escape]** to Force Quit.

Continued on next page

Clip photos

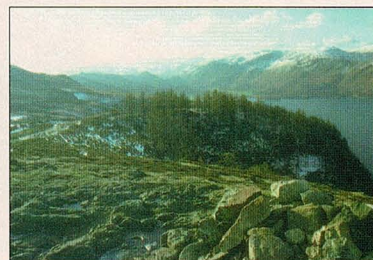
Sample images from Corel

Requires: Colour Mac, graphics software

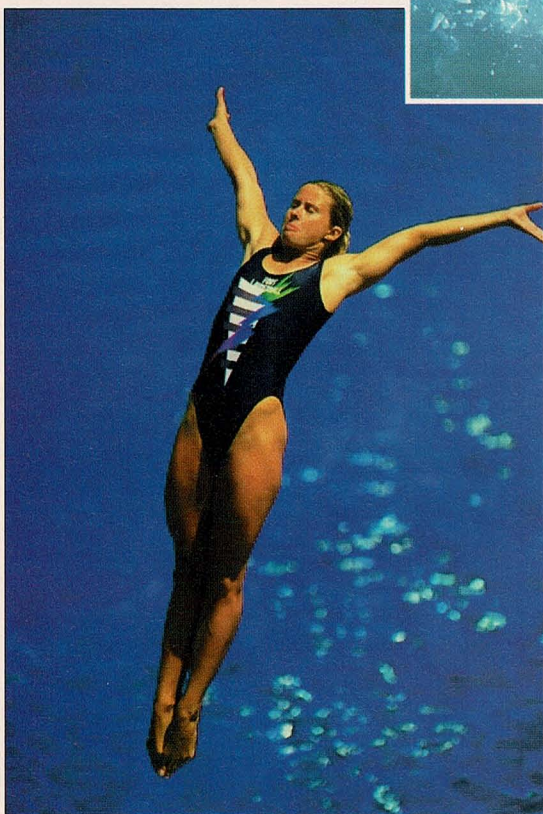
Ten high-res clip photos from the Corel collection 2. If you want an easy way to view these images, try out the *MACFORMAT Image Browser*. At the click of a mouse button you can view all this issue's Corel photos in a slide show format.



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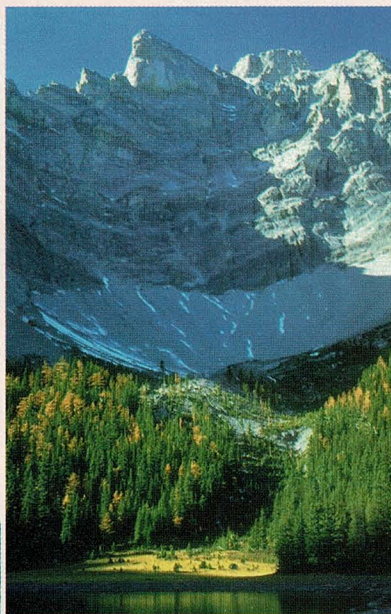
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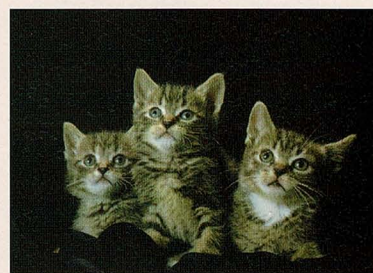
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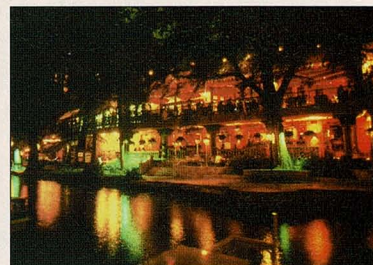
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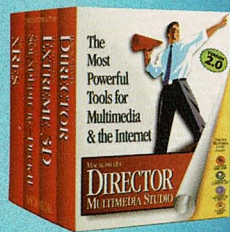
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WHAT DO YOU THINK?

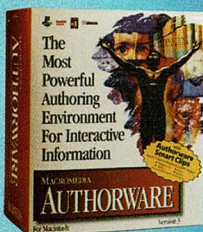
We are always open to ideas for our Cover CD and we want to know what you think. Should we include an interface to make it easier for you to navigate? Do you miss the Highlights folder? Do you want more games demos or are there already too many? How could we improve the disc? Let us know and your ideas may change the face of the *MACFORMAT* Cover CD. If you come up with an idea that we use, we'll make sure you get the credit you deserve (and of course some free software!)



Or Upgrade to the Director Multimedia Studio for £399!

YES! It's true! Current Director or Director Multimedia Studio users can upgrade to this new version for only £399. Director Multimedia Studio includes full versions of Macromedia Director 5, Extreme 3D, xRes, SoundEdit 16 and Deck II for the Macintosh, and Sonic Foundry Sound Forge XP for Windows. Don't miss out, upgrade from previous versions of Director NOW for only £399.*

Call CU Upgrades on 0181 358 5855 for details.



Authorware 3.0 for Windows and Macintosh

Authorware 3.0 gives you the power to create, deliver and maintain interactive applications for education, training and publishing. Its object-oriented, icon-based authoring environment includes hypertext and media capabilities, data measurement functions and media integration controls. Its use of icons instead of scripting shortens the learning curve for non-programmers—increasing productivity.

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For more information:

On the Web at

<http://www.macromedia.com>
<http://www.unlimited.com>



Do you want more information NOW? Yes? Then call Computers Unlimited FastFacts on

0181 358 5850

How do I use it?

1. Have your FastFacts info request number(s) ready
2. Dial FastFacts on 0181 358 5850 by phone
3. Enter the fax number where you want the information to be sent
4. Enter the info request numbers of the products you're interested in

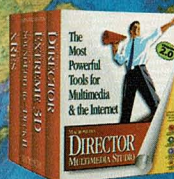
And that's it... easy, within a few minutes the information you wanted will arrive at your fax machine.

Or for your nearest authorised dealer

0181 358 5857

The Best Multimedia Tools On Earth, At A Shocking Price

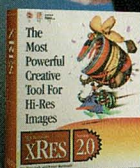
Director Multimedia Studio



Director Multimedia Studio

only £1,110 SRP

you save £1,496 on separate SRP!



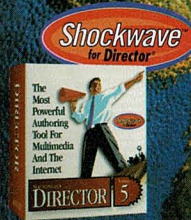
xRes™

£549 SRP
Separate selling price



Extreme 3D™

£549 SRP
Separate selling price



Director 5™

£999 SRP
Separate selling price



Sound Edit 16 & Deck II™

£499 SRP
Separate selling price

It's true. You get everything you need to develop corporate presentations, CD titles, interactive kiosks and more. Five applications that work together to power your ideas faster than you ever imagined. And the ability to author once and play anywhere— from Mac to Windows 95 and NT, all the way to the Internet. All in one package for only £1,110.

What can you do with all this power? You can take 3D modeling and animation to the edge of the universe with Extreme 3D.™ Create mindblowing graphics with Macromedia xRes,™ probably the fastest hi-res image editor in the world. Record and edit multitrack, 16-bit

digital audio with SoundEdit™ 16 *plus* DECK II.™ And wrap it up in new Macromedia Director® 5. With anti-aliased text, multiple casts, snap-to alignment and Xtras™ plug-ins, it's the fastest Macromedia Director ever. Then sit back and watch heads turn around the globe as Shockwave™ plays your productions on the Internet. You can't find this much creative power anywhere else. But you can see it all for free. Just stop by our Web site or fax for a Showcase™ CD.

Now that one multimedia studio lets you create anything you can imagine, what in the world are you waiting for?



xRes

FastFacts 1000



FreeHand

FastFacts 2001 (Mac)

FastFacts 2002 (Win)



Extreme 3D

FastFacts 5020



Fontographer



Director

FastFacts 5001



Authorware

FastFacts 5011



SoundEdit 16

FastFacts 5002

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Digital Painting _____

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Other _____



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MACFORMAT • ISSUE 38 • JUNE 1996

GOT A PROBLEM?

If either your cover-mounted high density disk or CD-ROM is defective, return it to us and we will replace it. Please make sure you have followed the installation procedures described in these pages correctly, to ensure that there is a physical problem with the disk itself. Otherwise, the replacement will be just the same!

Return HD disks to:

TIB plc
TIB House
11 Edward Street
Bradford, BD4 7BH

Return CD-ROMs to:

MACFORMAT CD returns
Future Publishing
FREEPOST (BS4900)
Somerton, Somerset, TA11 6BR

Enclose a self-addressed padded envelope (but we'll pay return postage) with the disk or CD, and a description of the fault. Please do not return disks or CDs to the editorial office; we don't hold any stocks of them and can only refer you to the addresses above.

Biorhythms 5.4c

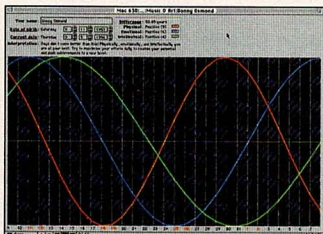
Prediction

Requires: Any Mac, System 7

If you want to know in advance when you're going to have a bad day, this is the perfect software for you. *Biorhythms 5.4c* is a great implementation of the classic body clock prediction system. If you're new to this style of forecast, it works on the basis that everyone is controlled by three timed cycles. The Physical cycle lasts for 23 days, the Emotional 28 days and the Intellectual 33 days. So from the day you're born the clock starts ticking and the cycles roll. If you plot each of the three cycles on a graph, you can see when you have highs and lows in each of the key areas.

This computer version is very easy to set up and use. You can check any date you want and search through the calendar to find the days when it's best to take on life's challenges, as opposed to the days when it's more sensible to stay in bed with your head firmly wedged under the pillow.

Supplied with *Biorhythms 5.4c* are over 100 charts of famous people, so if you want to know whether Prince Charles is having a good day or if John Major should be avoiding intellectually taxing work, you can check out their biorhythms.



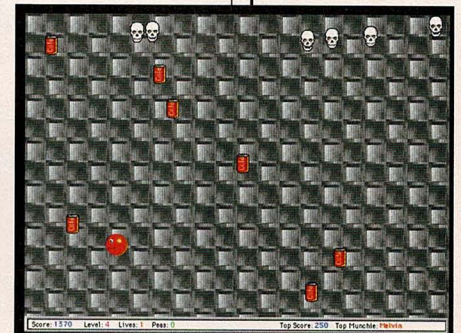
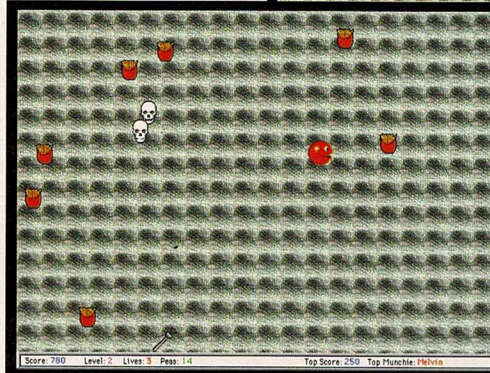
Another great day in paradise?

Munchies v1.0.2

Arcade game

Requires: colour Mac, System 7

Addictive arcade action is in store with *Munchies*. Using the mouse, you control Melvin the Munchie as he gobbles up everything edible in sight. There are hazards to avoid in the shape of evil skulls and deadly knives and forks, and each level has different delights on which you can help Melvin gorge himself, including burgers, chips, pizzas and a whole range of bonus treats. Extra powers are gained by eating some of the bonus



treats which appear from time to time. You can also ward off your foes by coating Melvin in a protective layer of pure cholesterol – eating a whole portion of butter will do the trick. You can help Melvin gain his own fire power by eating rock hard peas as they fly across the

screen. He can then use these veg as bullets to kill off deadly enemies. When Melvin has eaten every last morsel on the screen, a door pops up for him to make his exit and you can move him on to his next free lunch.

FLOPPY TOO

We are always on the lookout for readers' contributions for the floppy as well as the CD, so don't be put off just because you don't have a CD-ROM drive. Send them in to:
The Disk Editor,
MACFORMAT,
30 Monmouth Street,
Bath BA1 2BW.

Munch your way through meat, fruit and veg and if you get far enough, you might even reach a level supplied with coffee and after dinner mints.

Print Utilities

Various

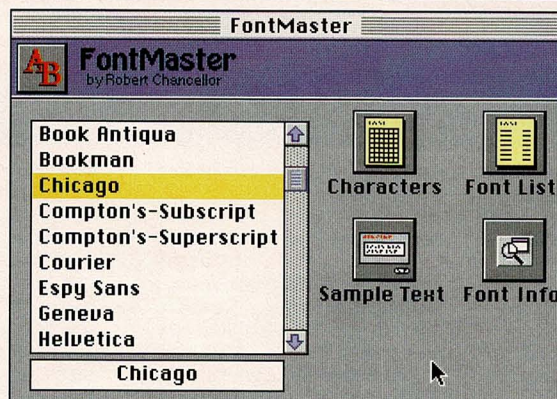
Requires: see individual ReadMe files

As a special to go hand in hand with this issue's cover feature, we have no less than five font utilities to help you get the very best from all of your printed output.

Like ten pound notes, you can never have too many fonts, so included on the disk are two Freeware fonts for you to add to your collection. To help you to keep these in order and get the most from all your other fonts are some great utilities. *Font-o-rama!* enables you to view any font from your System Folder and, if you are working in a supported application, instantly change the font used simply by hitting [enter]. The software requires System 7.5, but takes full advantage of its features using Apple Guide and Apple Script to help you on your way.

If you are yet to make the leap to the latest System software, we have *Font O'Matic* just for you. This software enables you to view each font on your Mac in turn, using a paragraph of predefined text.

If you want to know more about the fonts



FontMaster will help you find hidden characters and deep secrets in your Font folder.

on your System, try out *FontMaster*. This probing software not only enables you to print out a list of all the fonts that your System contains, but also enables you to print out the complete character set of each font – a feature that's particularly handy if you make use of a lot of symbol based fonts.

And finally there's *Fast Case*. This provides you with a quick and easy way to create empty Suitcases in your Fonts folder, perfect for organising your fonts and keeping this important part of your System Folder in order.

GET CONNECTED

To connect your Mac to a dot matrix printer, you'll need a serial-to-parallel cable. These are available from most major computer dealers and good electronics hobby stores, including Maplin Electronics (mail order 01702 554161) and Tandy (0500 300666 for your nearest store).

You should expect to pay something in the region of £20 for one of these cables – a lot less than you'd have to pay for a new printer!



Discover the latest Mac-related Web sites. Plus: what have over a quarter of a million people got in common?

It's official – FutureNet is the biggest commercially-run Web site in Europe, thanks to your support. More than 270,000 people have registered to see the FutureNet pages, which include regular updates from MACFORMAT

Getting connected

All you need to connect to FutureNet is a modem and an Internet account like Demon or CityScape, or a direct server connection through work or college. There are no hidden charges – FutureNet is free! Use your World Wide Web browser to connect to

<http://www.futurenet.co.uk/>

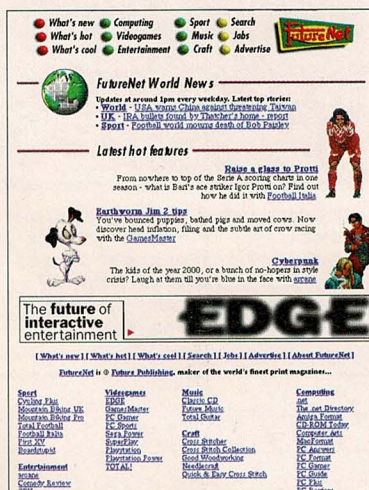
plus all Future's other magazines.

May sees a new look for the home page of FutureNet, making it easier to find the features you want. You should find the one-stop index of magazines and their subject areas especially useful. You'll get an idea of how it'll look from the picture below.

FutureNet has a daily news service and gossip and features from our magazine teams. MACFORMAT's own pages include Mac news, features and the World Wide Web Road Map – a guide to resources elsewhere on the Web. The latest additions are listed below. We also feature The Ultimate Macintosh, a giant guide which shows you where you can find the Mac information you need.

If you want to take a look, you'll need a modem and an Internet connection for your Mac. Look out for our cover feature next issue, where we'll take a look at what you need in more detail.

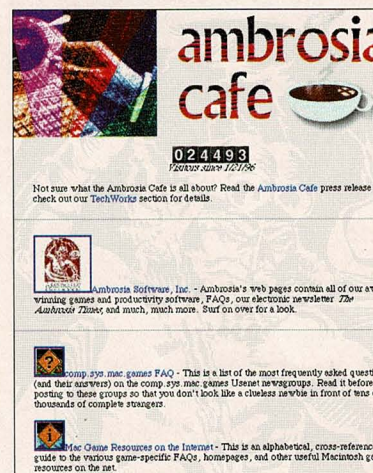
RICHARD HILL



The new-look FutureNet home page makes it easier for you to find your way around the thousands of pages available.



MacintoshOS.com is a community service for Mac fans, including information on old Macs, live forums and a select shareware library.



The Ambrosia Cafe hosts a collection of excellent sites, each with its own strong, individual flavour. Check out Mac Media and AppleSauce.



Now you can find out the latest UK Mac information and look up important contact details in the new Apple UK Web pages.

LINKS FOR THIS ISSUE

You can visit any of the following Web sites either by typing its address (given below each title) into the Location line of your Web browser, or by going to the World Wide Web Road Map section of MACFORMAT's pages on FutureNet. There you'll find direct links to each of these sites, as well as dozens of others.

This issue, we've caught up with the latest sites that cover different aspects of the Mac. You'll find the links in the Computing area of the Road Map.

Apple Computer UK Home Page

<http://www.euro.apple.com/uk/>
Apple has a wealth of useful resources on the Web, but it's always been focused on the United States. Now the UK arm of Apple has its very own site, so you can get a much-needed dose of domestic information. Bless 'em.

Although it's a fairly small area at the moment, you'll still find essential contact numbers, the latest announcements, the history of Apple UK and a guide to the shows where Apple will be exhibiting.

Sadly, there's no sign of a Louise the PR Person Home Page.

Ambrosia Cafe

<http://www.ambrosiasw.com/Cafe.html>

The café tag suits this particular stew of Mac magazines perfectly. Ambrosia Software is the firm behind shareware hits such as *Apelron* and *Maelstrom*, which is a member of our MACGAMER Hall of Fame. It has now invited its favourite Web site authors to use its own computers to reach a wider audience.

On the menu you'll see servings of MacinStuff with a guide to daily news services, the irreverent AppleSauce and Mac Media, which features music and film reviews together with coverage of Mac hardware and software. You'll also find links to Ambrosia's pages and the latest game FAQs (Frequently Asked Questions).

MacintoshOS.com

<http://www.MacintoshOS.com/>

This beautifully-presented site joins the growing number of pages being put

together for Mac fans by Mac fans. Created by a trio from the United States, MacintoshOS.com has several extremely lively areas.

The Macintosh Museum is a guide to every Mac model that has ever been released. Apparently the first Macs, which sold for \$2,500, are now worth a mere \$15. The Shareware Library is much smaller than many you would find elsewhere, but that's because the three authors have decided to highlight only the best programs out there, but with full descriptions of each. And areas such as the troubleshooting guide and a live discussion forum are growing quickly.

'We wanted to create a page every faithful Mac user would one day tell their grandchildren about,' says the site's co-founder Nathan Morley. Take a look and see how well they've started.

An Apple a Day

http://www.iti.gov.sg/iti_people/iti_staff/hcleong/appledays.html

The title makes the simple idea behind

this page obvious: every day Heng-Cheong Leong comes up with a link to a site of interest to Apple Mac followers around the world. It might be a site about Macs, like Mac Today or PowerBook Army, or it might be a site created on a Mac. So you'll find links to sites about subjects as diverse as the first Parisian cinemas and MacMan, the first Mac super-hero – who, incidentally, is hidden behind our FutureNet logo at the top of the page.

Introduction to Apple Easter Eggs

<http://members.aol.com/ixist/apple.html>

As far as the Mac is concerned, Easter eggs are hidden treats like mini-games or animated sequences within programs. You'll only find them if you know the right keyboard combination to press.

This is a guide to all the Easter eggs author Daniel Fanton is aware of, and he challenges you to find more. You'll discover the surprises hidden within the operating system on your Mac alongside many others lurking in your software.

Xtend your abilities and Plug-in to the Xtras...

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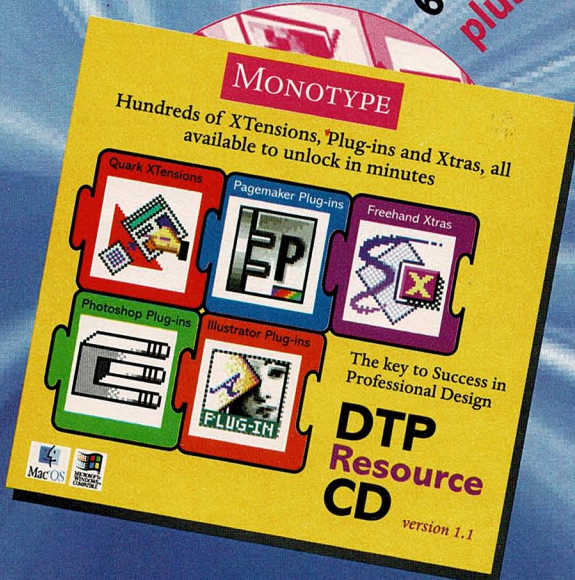
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	RAM	HD	MONITOR	CD TV	K/B	Price
5200	8Mb	800Mb	15" Int. FST	✓	✓	£853
	8Mb	800Mb	15" Int. FST	✓	✓	£929
	8Mb	800Mb	14" M/S	✓	✓	£909
	8Mb	800Mb	15" M/S	✓	✓	£969
6200	8Mb	500Mb	14" M/S	✓	✓	£639
	8Mb	500Mb	14" M/S	✓	✓	£939
	8Mb	500Mb	15" M/S	✓	✓	£989
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7500/100	100	8Mb	500Mb	✓	£1479
7500/100	100	16Mb	1Gb	✓	£1999
7600/120	120	16Mb	1.2Gb	✓	£2249
8200/100	100	8Mb	1.2Gb	✓	£1399
8200/120	120	16Mb	1.2Gb	✓	£1749
8500/120	120	16Mb	2Gb	✓	£2849
8500/150	150	16Mb	2Gb	✓	£3199
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9500/132GR - with Apple Graphics Card					
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Ethernet Cards (for models without Personal Comm Solutions) - Thin Co-Ax direct fit £59 UTP (direct fit) £59 ALL (requires adaptor) £59
VIDEO OPTIONS: Video-In Card - £89 Video-In/TV Tuner Card - £219 Video-Out Card - £219
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5300cs/100 16/750 Dual Scan	£2249	5300c/100 8/500 AM	£2379
5300c/100 16/750 AM	£2899	5300ce/117 32/1100 AM	£3999
DUO 2300c/100 8/750 AM	£2369		
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6300	8Mb	1.2 Gb	14" M/S	✓	✓	£949
	8Mb	1.2 Gb	14" M/S	✓	✓	£1249
	8Mb	1.2 Gb	15" M/S	✓	✓	£1299
6320	8Mb	1.2 Gb	14" M/S	✓	✓	£1089
	8Mb	1.2 Gb	14" M/S	✓	✓	£1389
	16Mb	1.2 Gb	15" M/S	✓	✓	£1429

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Manufacturers' specifications and GH prices are correct at time of going to press; however, they may fluctuate and we therefore reserve the right to amend them - please confirm prices before ordering. This advertisement is an invitation to treat, not an offer to sell. Goods are not supplied on a trial basis. All transactions are subject to Harwood's Terms and Conditions of Sale, a copy of which is available on request. E&OE.

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Apple 15" Multisync (28)	£285
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Apple 17" 1710 Trinitron Multisync (26)	£CALL
Apple 20" Trinitron MultiScan II (26)	£1249
NEC 14" XV Multisync (28) inc. Adap.	£219
NEC 15" XE Multisync (28) inc. Adap.	£419
NEC 17" XV Multisync (28) inc. Adap.	£589
NEC 17" XE Multisync (28) inc. Adap.	£739
NEC 17" XP Multisync (28) inc. Adap.	£969
Sony 15" SX1 Trinitron Multisync (26) inc. Adap.	£299
Sony 15" SF2 Trinitron Multisync (26) inc. Adap.	£339
Sony 17" SF2 Trinitron Multisync (26) inc. Adap.	£549
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GH Prices INCLUDE Adaptors for NEC & Sony Monitors!

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SCANNERS

Apple Color One 600-27 Scanner	£399
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U M A X

Model	Photoshop	Transp. Adap.	Price
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VISTA 56e LE	X	X	£299
VISTA 56e FULL	X	X	£725
VISTA 512	LE	X	£575
VISTA 512 FULL	X	X	£675
VISTA 512 FULL	X	X	£975
GEMINI LE	X	X	£779
GEMINI FULL	X	X	£879
GEMINI FULL	X	X	£1199
POWERLOOK II FULL	X	X	£1699
POWERLOOK II FULL	X	X	£1999
POWERLOOK II FULL	X	X	£2799
with BINUSCAN			
MIRAGE A3 FULL	X	X	£5995
Transparency Adaptors (Quote model on order)			£399
TextBridge bought with any Umax scanner			£39

E P S O N

Model	Photoshop	TextBridge OCR	Price
GT 5000 LE	X	X	£325
GT 8500 LE	X	X	£495
GT 8500 FULL	X	X	£669
GT 9000 LE	X	X	£589
GT 9000 FULL	X	X	£779
Transparency Adaptor...			£399
FOR 6000, 6500, 8000, 8500 and 9000 models (Please quote scanner model requirements with order)			

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Viewsonic Paperport for Mac (While Stock Last)	£CALL
Viewsonic Paperport VX for Mac (Both come with WordScan OCR Software)	£239
NEW Port Juggler for Paperport	£89

CAMERAS

Scitex Leaf Lumina	£2849
Digital Electronic Photo Scanner/Camera with 35mm Slide & Tranny Scanning	£479
NEW Casio QV-10 Digital Camera	£379
Apple QuickTake 150 inc. Mac/PC Kit	£48
QuickTake 150 Connector Kit for second Mac or PC	£40
QuickTake Carry Case	£79
Connectix QuickCam	£79

WACOM TABLETS

Artipad II... £119	Artipad II with Dabblerr... £150
Ultra Pad... A5 - £255, A4 - £355, A3 - £555	

KEYBOARDS

Third Party Design Keyboard	£40
Apple Design Keyboard	£76
Apple Extended Keyboard	£135
Apple Adjustable Keyboard	£160

PRINTERS

Apple Personal Laser 300 - 300dpi Mono	£415
Apple Laser 4/600PS - 600 dpi Mono	£589
Apple Laser Select 360 - 600 dpi Mono	£989
Apple Laser 16/600 - 600 dpi Mono	£1549
Apple Color LaserWriter 12/600PS	£4999
600 dpi Colour and Mono	
TI Microlaser 600 - 600 dpi Mono - 2Mb	£569
TI Microlaser 600 - 2Mb RAM Upgrade	£135
NEC SuperScript 3000 - HIGH QUALITY COLOUR	£575
Apple StyleWriter 1200 Mono 720 x 360dpi	£95
Apple StyleWriter 1500 Colour 720 x 360dpi	£219
Apple StyleWriter 2200 Colour 720 x 360dpi	£269
Apple StyleWriter 2400 Colour 720 x 360dpi	£259
Apple StyleWriter 2500 Colour 720 x 360dpi	£289
Apple StyleWriter EtherTalk Kit	£144
Epson Stylus Colour II 720 x 720dpi	£269
Epson Stylus Pro XL Colour - A4 720 x 720dpi	£399
Epson Stylus Pro XL Colour - A3 720 x 720dpi	£899
Epson Stylus Pro POSTSCRIPT RIP	£179
HP 340 DeskWriter Mono 600 x 300dpi	£209
HP 600 DeskWriter Mono 600 x 300dpi	£209
HP 660C DeskWriter Colour 600 x 300dpi	£269
HP 850C DeskWriter Colour 600 x 600dpi	£349
Fargo PhotoFun PicturePrinter	£299

PowerPrint Use parallel printers with Macs	£79
StyleScript Adaptor PS RIP for Apple Colour SWs	£75

CONSUMABLES

StyleWriter... III/1200	Black Cartridge	£14
StyleWriter 2400	Black Cartridge	£21
	Black Ink Tank	£24
	Colour Tank	£12
Colour StyleWriter Pro	Black Hi-Capacity Cartridge	£9
	C M, or Y Cartridge (each)	£30
	CMYK - 4 Colour Set Cartridge	£11
Epson Stylus	Colour Cartridge	£24
Epson Stylus II	Black Cartridge	£15
	Colour Cartridge	£22
Epson Stylus A4 Paper	360dpi Paper, 100 Sheets	£12
	720dpi Paper, 100 Sheets	£16
HP 340 DeskWriter	Black Cartridge	£18
HP 600/660 DeskWriter	Black Cartridge	£20
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ZIP Drive 100Mb Cartridge		£15
Formac 88Mb Syquest Drive - inc. Cartridge		£204
Formac 200Mb Syquest Drive - inc. Cartridge		£299
Formac 270Mb Syquest Drive - inc. Cartridge		£349
Formac 230Mb Optical Drive - inc. Cartridge		£379
Formac 1.3Gb Optical Drive - inc. Cartridge		£949
D2 88Mb Syquest Drive - inc. Cartridge		£239
D2 200Mb Syquest Drive - inc. Cartridge		£329
D2 270Mb Syquest Drive - inc. Cartridge		£379
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Apple CD 600e Plus Quad Speed	£219
Apple CD 600i Plus Internal Quad Speed (Requires fitting kit - please call for details/price)	£219

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Apple GeoPort for AIVPower Macs - 14.4	£94
Apple Personal COMMS Solution - 14.4	£109
Motorola 3400 Pro V34 - 28.8	£145
US Robotics Sportster 288 V34 - 28.8	£174
Supra 288 Fax Modem - 28.8	£175
NEW... Global Village TelePort Gold II - 14.4 BAST	£145
NEW... Global Village TelePort Platinum - 28.8 Non BAST	£195
NEW... Global Village TelePort Platinum - 28.8 BAST	£249
NEW... Global Village PowerPort Gold - 14.4 BAST	£215
NEW... Global Village PowerPort Platinum - 28.8 BAST	£299
NEW... Global Village PowerPort Plat. - PCMCIA 28.8 BAST	£325
NEW... Psion Dacom Gold Card - PCMCIA	£219

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Apple PC 486 DX2 66MHz Hardware PC Card with DOS 6.2 for the Powermac 6100	£169
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Orange Micro 486DX2 66MHz PC Card with 4Mb RAM for Macs with PC fitting	£829

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DIMMS... 4Mb	£119	8Mb	£165	16Mb	£285	32Mb	£549

SIMM Prices Fluctuate Daily, Please Call FIRST!!!

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Adobe Photoshop 3.0	£399	Creative Writer & Fine Artist	£39
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Claris Draw	£95	Encyclopedia of Science	£38
Claris Impact	£95	Encyclopedia of Nature	£38
Filemaker Pro 3	£359	Ultimate Human Body	£38
Microsoft Office	£359	World Reference Atlas	£45
Microsoft Word	£245	P.B. Bears Birthday Party	£23
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MacMoney	£62	Endorfin	£23
NEW Complete After Dark CD	£39	Entomorph	£34
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Apple Personal Diagnostics	£39	Doom II	£32
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NEW Norton Utilities 3.2	£74	SIM City 2000 Compilation	£34
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RAM & SPEED Doubler PACK	£54	NEW Descent II	£30
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Key Fonts	£13	NEW Eleventh Hour	£CALL
More Key Fonts	£13	NEW Warcraft	£25
Hypercard 2.3.1	£94	LOTS MORE SOFTWARE	CALL GH

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Apple Design Speakers II	£49
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Kensington Turbo Mouse V4	£59
Kensington Thinking Mouse	£51
Macally Mouse	£17
Macally Joystick	£32
Macally Game Pad	£22
Jet Stick	£38
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Mouse Mechanic Maintenance Tool	£5
GH Quality Mouse Mat	£5
3.5" Disk Head Cleaner	£2
10 - TDK/Sony 3.5" HD Blank Disks	£6
50 - TDK/Sony 3.5" HD Blank Disks	£30
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NEWTON

NEWTON 120 MkII - 2Mb + Software Pack	£409
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Newton 2Mb Storage Card	£105
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Leather Carrycase - 110/120	£45
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GH is a family business established in 1955, supplying systems since 1982. With over £40 million worth of units supplied, and a quarter of a million happy customers, our trading record leaves others standing!



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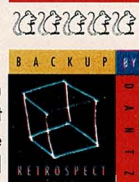
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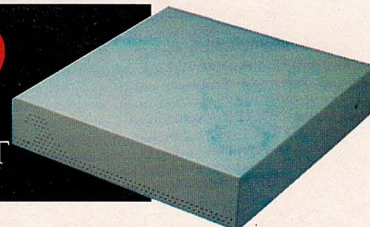
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MACFORMAT NEWS

Apple readies fightback, but takes a hit; new PowerMacs add value; games writers get help. News Editor: Richard Hill.

Amelio clears way for new Apple

Change continued to sweep Apple in April as new boss Gil Amelio took more steps to return the firm to a sturdy financial footing. There were more dramatic signs of the spring cleaning operation Amelio began when he took over in February.

The most significant development was that Apple made an operating loss of \$740 million (£490 million) in the first three months of 1996. This is by far Apple's biggest-ever quarterly loss, but there are sound business reasons behind it. Inheriting a confused situation where there was a shortage of the more powerful machines and a large overstock of other Macs (like the

which already makes computers for other firms – including Mac-compatible computers for Power Computing. SCI will inherit the 1,100 employees working for Apple at the plant and the Macs coming out of there should actually end up costing less.

The way ahead

Amelio is planning to announce more plans to make Apple stronger at the firm's WorldWide Developer Conference in May, after three months of analysing company strengths and weaknesses and taking feedback from employees. But he gave some indications of what he's got in mind when he spoke to reporters after the loss was announced in April.

Despite the size of Apple's deficit this quarter, Amelio has set the target of breaking even within the year. He also wants to make the company more accountable to its customers. Doing this and getting Apple to sell particular products well will solve '90% of Apple's problems', said Amelio.

He pointed out five areas that will form the backbone of Apple's efforts in the future: the PowerMac (1) and home machines (2) like the Performa and the Pippin console are the most vital products, contrary to speculation that Apple would abandon the home market. PowerBooks (3), server computers (4) for hosting Internet sites and the Newton portable assistant (5) will also receive renewed support.

He also confirmed what nearly everyone except Apple had believed for some time: the release of Copland,

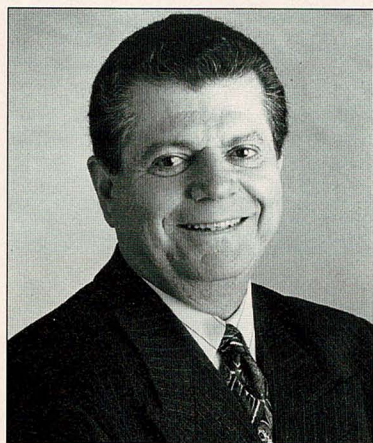


Copland is destined to be the new face of the Mac operating system – but not until next year.

the next version of the Mac operating system, will be delayed until 1997 rather than the promised late '96. But the delay will give Apple a chance to make the OS work more closely with the Internet, giving it a technological advantage over rival systems like Windows 95.

Research chief leaves

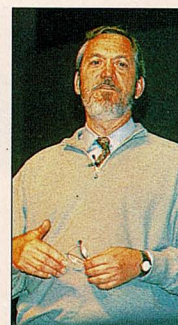
David Nagel, Apple's respected head of research and development, has left Apple to lead the Labs department of global phone company AT&T. Overseeing the continuing work on Copland, the new version of the Mac OS, Nagel was a popular figure, but had also been criticised for delays in Copland and PowerMac designs. Apple's only official comment indicates Nagel has left because of the extent of the opportunities at AT&T, rather than any disagreement with Amelio.



After just three months at the head of Apple, Gil Amelio has already given it a good seeing-to.

Performa range), Amelio has essentially given up on selling these surplus Macs at a profit. Writing them down alone is costing \$388 million (£257 million).

Apple also now intends to cut another 1,500 jobs on top of the 1,300 posts Amelio's predecessor Michael Spindler said in January would disappear. This doesn't necessarily mean 2,800 people are to lose their jobs. Apple is selling one of its manufacturing plants to SCI Systems,



David Nagel's headed for pastures new.



APPLE JOINS WEB CLUB

The Mac should become an even bigger force on the Internet after Apple joined the World Wide Web Consortium, the group that establishes software standards for the Web. Look out for Apple technologies like TrueType and QuickDraw 3D becoming a more important part of using the Web.

Five-star PowerMacs hit stores

You now have a wider choice of bigger and faster PowerMacs after the recent introduction of a new range where virtually no model is left unchanged. With something for most pockets, everything in the range is either brand-new or revamped. On top of this, every model now comes with a CD-ROM drive.

The minimum PowerMac remains the 7200 with a 601 chip, but the clock speed that dictates the speed of the chip is now set at 90MHz. With 8Mb of RAM and a 500Mb hard drive, this

starter PowerMac for small business now costs around £1,351.

Next up is a new machine, the 8200. Starting from around £1,763, this tower-based business computer can work up to 50% faster than the 7200, thanks to a disk cache in its 16Mb version.

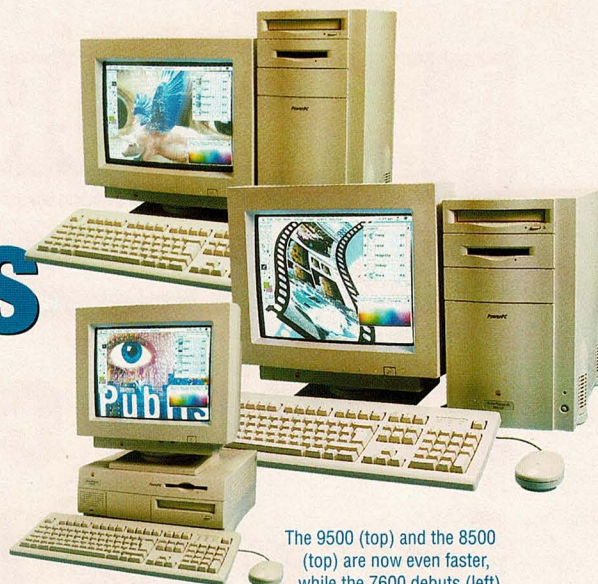
You might think the 8200 is a little confusingly-named as it's less powerful than the lower-numbered 7600, another new machine. This is now the lowest-priced 'future-proof' PowerMac, with a daughterboard arrangement that means you'll easily be able to swap its main 604 processor for a faster one when it becomes available. At £2,820 it's 50% faster than the 601-based 7500 it replaces.

Moving up to the graphics power-

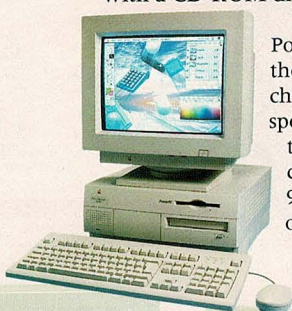
houses, the £4,054 8500 and the £4,583 9500 now both come with a 604 chip running at the increased speed of 150MHz. The difference between the two is that the 9500 has 32Mb of RAM to the 8500's 16Mb, as well as a built-in video card for professional video editing work.

Our table shows you the new-look PowerMac range in full. All models include a CD-ROM drive, but you'll need to add a keyboard, mouse and monitor. All prices include VAT.

■ As we went to press, Apple announced new Performa models. There are two machines, which are faster versions of the current PowerPC Performas. More next issue.



The 9500 (top) and the 8500 (top) are now even faster, while the 7600 debuts (left).



There's more choice of starter machines with the 7200 (top) and the new 8200 (above).

THE NEW POWERMAC RANGE

Model/ clock speed	Processor	RAM	Hard disk	Price
7200/90	601	8Mb	500Mb	£1,351
7200/90	601	16Mb	1Gb	£1,663
7500/100	601	8Mb	500Mb	£1,852
7600/120	604	16Mb	1.2Gb	£2,820
Includes 256K Level 2 cache				
8200/100	601	8Mb	1.2Gb	£1,763
8200/120	601	16Mb	2Gb	£2,203
Includes 256K Level 2 cache				

Model/ clock speed	Processor	RAM	Hard disk	Price
8500/120	604	16Mb	2Gb	£3,631
8500/150	604	16Mb	2Gb	£4,054
Includes 256K Level 2 cache				
9500/132	604	16Mb	2Gb	£3,798
9500/132	604	16Mb	2Gb	£4,004
Includes ATI video card				
9500/150	604	32Mb	2Gb	£4,583
Includes 256K Level 2 cache and video card				

Help for games authors

The growing number of game releases on the PowerMac is set to increase with the debut of Apple software to help professional game developers. Using Apple's free Game Sprockets, devel-

opers can bring 3D graphics, Internet link-ups, speech recognition and other attractive features into their games without having to write programming code for these areas from scratch. There's also now a standard

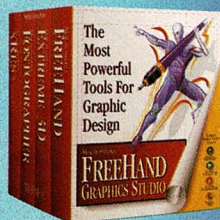
way of setting up joysticks, which was previously problematic.

QuickDraw 3D RAVE (Rendering Acceleration Virtual Engine) gives games the ability to produce fast-moving 3D graphics and receive an automatic boost if you get a 3D acceleration card.

Already available in test form, the six Game Sprockets will be complete this summer and will be free for developers to use from the World Wide Web. You can find more information about the sprockets at the Web address <http://www.dev.info.apple.com/evangelism/games/games.html>

Publishers like Bungie (*Marathon*, right) and Interplay (*Descent*, far right) are eyeing up Apple's new games tools with interest.





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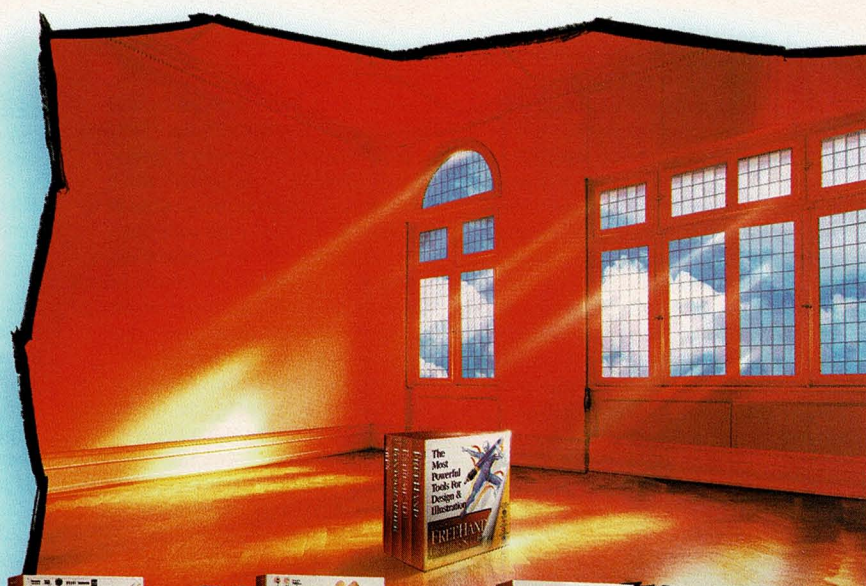
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Current 3D application users can buy Extreme 3D for only £159*.

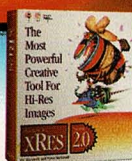
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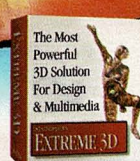
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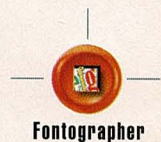
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CD-ROM rules for new releases



Test your timing and reflexes with *Pro Pinball: the Web*.



Adventures reign with *Monty Python and the Holy Grail* (above) and *Fable* (right).

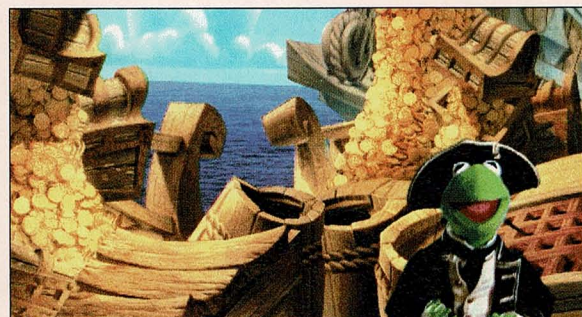
The surge in Mac multimedia, education and games continued as more titles were announced at April's European Computer Trade Show. ECTS is a gathering point for retailers across Europe, as they find out what's coming up for the Mac – and every other type of computer and console – over the next few months.

Nearly every title on show was on CD-ROM. The growing number of Mac owners with access to a CD-ROM drive means the Mac is becoming an automatic choice for publishers to

write for, taking its rightful place alongside a select few other formats.

Another trend was also obvious: the audience for computer

software is broadening beyond its traditional constituency and could reach the levels achieved by books and films. At the moment, publishers can't be sure that they'll sell enough copies of a title to justify spending a lot of money on it. But they're also aware that without strong (and expensive) production values, the title is less likely to succeed. They're playing safe by seeking out star names and mass-appeal subjects for their CD projects, so don't expect too many CD-ROMs on obscure or specialist areas for a while. Look out for the following titles and many more later this year.



There's adventure on the high seas for all the family in *Muppet Treasure Island*, one of several big-name children's titles coming out in 1996.

Multimedia

Following the precedent set by Corbis's *Cézanne*, Grolier's *Picasso* (due out in September) ties in with a major Paris exhibition of the artist's work this autumn. The disc looks at over a hundred artworks in the only CD-ROM so far to feature Picasso's work.

Origins of Mankind from Maris brings the latest technology to bear on one of the oldest subjects of all. Trace the physical evolution of Man by setting up morphing animations that take you through the different stages. Maris also offers *Discover Astronomy*, a beginner's version of its superb *Redshift*.

Italian publisher Sacis brings the best of its huge catalogue to the UK this year. A partner of RAI, the Italian equivalent of the BBC, it has access to a wealth of TV footage. Expect titles as diverse as *Mozart: Life and Works*, *Don Giovanni* and a QuickTime VR tour of *Rome*. There's also *14 Weddings and a*

Funeral, which recounts the turbulent history of our Royal Family this century.

News Multimedia, the CD-ROM arm of the Rupert Murdoch empire, brings you *Makers of the Twentieth Century* (May) – an unusual look at the prominent figures of the last 96 years, which attempts to make the disc feel like a work of art as well as a reference title.

Kids' titles

You want big names? You want mass appeal? They don't come much more appealing than Shari Lewis and Lamb Chop, and the duo bring you their first CD-ROM this year. Philips Media's *Lamb Chop Loves Music* (Summer) adapts the classic tale *The Musicians of Bremen* as your favourite sock helps children learn about different types of instruments and styles of music.

Activision's *Muppet Treasure Island* (May) uses CD-ROM to take you to the world of the new film of the same name. Join Kermit and Miss Piggy in search of treasure in a rich 3D setting.

And now girls can use CD-ROMs too (shock!), thanks to a new range of Barbie discs. *Barbie Fashion Designer* is one of three titles, enabling you to create dress patterns for your doll, and



The 1996 Maxis line-up includes a new departure for the firm with 3D blaster *The Mindwarp*.

then print your pattern onto specially-made fabric using a laser printer.

Games

Still being shown behind closed doors, *Quake* looks like it could be the biggest title of the year. Id Software started the phenomenon of *Doom*, and aims to repeat its success with this more advanced action blaster. More 3D arrives as Maxis invites you to enter *The Mindwarp* in its first 3D action game.

Deathtrap Dungeon is designed by Ian Livingstone, the co-creator of the popular *Fighting Fantasy* books. You must battle through a 3D dungeon while beating off mummies and zombies.

Fable takes you into a mystical land of fantasy, with hand-drawn backdrops and Disney-like animation. *The Holy Grail* follows the success of *A Complete Waste of Time* to become the second *Monty Python* CD-ROM.

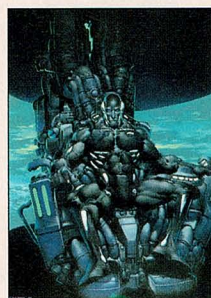
2000AD comic artist Kev Walker provides the designs for *Perfect Assassin* (December), Grolier's epic science fiction role-playing game, while *Mechwarrior 2* from Activision (July) puts you in command of a giant robot in a fast-moving 3D action title.

Klingon is among a new set of *Star Trek* CDs from Viacom. Set in the *Next Generation* era with video directed by actor Jonathan Frakes, the three-disc adventure challenges to you to think like a Klingon in order to track down a murderer.

Empire's *Pro Pinball: the Web* (May) is the first of a series that gives you the chance to try your skill on the toughest pinball tables around. Detailed 3D views and hidden features make it almost as realistic as a proper table.

SimCity, a MACGAMER award-winner for 'Best Spinning-out of One Good Idea', takes that next inevitable step with *SimCopter*. It'll be your chance to fly the helicopter you'll have seen flying over your cities if you've played *SimCity 2000*. You'll be able to bring cities you've made in 2000 into *SimCopter* and sort out accidents and fires from the skies.

MF



Comic artist Kev Walker lends his unique visuals to the *Perfect Assassin* game.

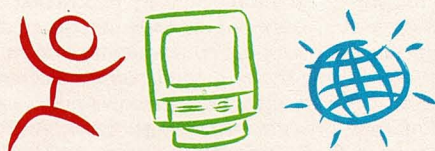


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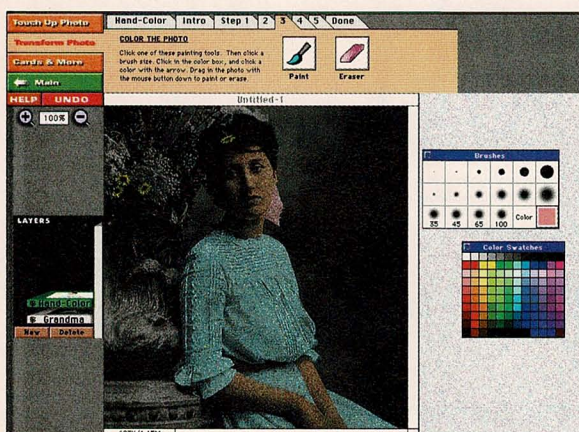
You, a Mac, the world.



WHAT'S NEW

A jam-packed What's New brings you the low-down on an exciting idea in graphics from Adobe, plus details of multimedia creator *Director*. Compiled by Lindsay Bruce and Richard Hill.

PhotoDeluxe



Adobe's new *PhotoDeluxe* gives you step-by-step instructions on how to use the software to do tasks like colouring a monochrome picture.

As a sign of how much things are changing on the Mac scene, they don't come much more dramatic than Adobe's facelift for its flagship image editing program *Photoshop*. *PhotoDeluxe* is a new program giving you the basic features of the software used by thousands of top-level designers and illustrators across the country.

You can use *PhotoDeluxe* on your Mac at home for a variety of everyday jobs, for instance modifying and customising photos before using them in reports and newsletters or making your own greeting cards and calendars. The idea is that you use the program in tandem with the new wave of low-cost methods of converting photography into electronic form, using scanners or simple digital cameras.

PhotoDeluxe offers the painting and editing tools found in *Photoshop*, as well as the most common filters for adding the special effects that enable you to distort your images in dramatic ways (see our graphics feature on page

You can also create more subtle effects like softening the focus or correcting the appearance of red-eye in flash photography.



56 for more on distortion). You even get four filters from MetaTools' mighty *Kai's Power Tools* – software capable of producing the most exotic effects imaginable. All this ability could be dangerous in the wrong hands and could seriously harm your sense of taste; so *PhotoDeluxe* also offers a crash course in using your new tools to the best possible effect.

Step-by-step guides show you how to perform those magic tricks you see designers pull off all the time – like removing the red-eye effect of a camera flash from a picture or changing the background behind a figure. You can lighten up photos that have come out too dark; join the electronic information revolution, converting pictures to send over the Internet; or make up a slide show to use as a screen saver for your Mac. A version of Berkeley's popular *After Dark* screen saver program is included.

Once you've learned your way around *PhotoDeluxe*, you can bypass the guides and use its full range of



Handle with care: you can create outlandish effects using the four *Kai's Power Tools* special effects supplied with *PhotoDeluxe*.



Adobe's *PhotoDeluxe* harnesses the might of the *Photoshop* graphics program to enable you to transform your photos.

features, set out on an uncluttered screen that's less imposing than those of the all-singing, all-dancing graphics powerhouses available today.

Despite the program's obvious simplicity, the underlying presence of *Photoshop* provides you with access to flexible features like the use of several layers in a single image, making it easier to edit your work. And you'll get good results too, either on the screen or through the accuracy of one of the newest low-cost colour printers. (See page 75 for our round-up of your best colour printing options.)

The big question is whether Adobe's enterprising approach will start a trend, with other firms following suit. Nice to think that sometime in the future you could find beginner-friendly versions of *Director*, *QuarkXPress*... or even *Word*?

■ Price: around £88. ■ Out: now.
■ Requires: LCIII or better, 8Mb of RAM (12Mb for PowerMac), System 7, 45Mb of hard disk space, 256-colour monitor, CD-ROM drive.
■ Contact: Adobe on 0181 606 4000.

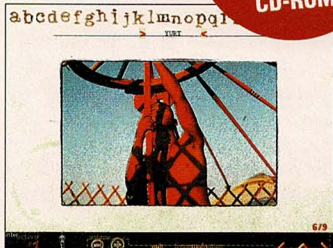


CD-ROM MAGS FROM FUTURE

Two new magazines out soon promise to redefine what magazines can be, when they appear for the first time on CD-ROM rather than paper. In the past, attempts at CD-ROM magazines have been distributed through computer software shops, meaning that their appeal has been limited to computer devotees. However, both of these new titles will be on sale at newsagents, and therefore capable of reaching a whole new audience.

The first issue of *Interactive Wave* is out in May and costs £9.99. It's a colourful and varied collection of features and reviews, along with interviews from musician Peter Gabriel and director Terry Gilliam.

Try out
demos of *SFX CD*
and *Interactive
Wave* on the
CD-ROM



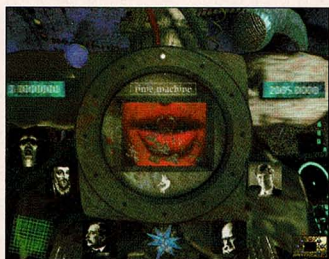
From France comes *Interactive Wave*, a stylish and interactive way of discovering new ideas in popular culture.

It will also contain demos and shareware of the latest programs for you to try.

Interactive Wave is produced by Paris based publisher LVI, which has won awards for its French-language CD magazine *La Vague Interactive*, and will be distributed throughout the UK by Future Publishing.

Future's science fiction magazine *SFX*, a top seller since its debut just over a year ago, will get a CD-ROM companion in June. Priced at only £6.99, the first issue of *SFX CD* looks at the 30th anniversary of *Star Trek* and brings news on the latest films including *Independence Day* and *Alien 4*. An interactive time machine looks at predictions of the future from Nostradamus, HG Wells, Arthur C Clarke and... er, Bill Gates – how much has come true? There are also excerpts from new novels and *Zarnak*, an interactive comic strip.

Both CD-ROMs will be appearing quarterly at newsagents everywhere.



Take a trip in *SFX CD*'s time machine, and discover how right famous seers were about the shape of the future.



SFX CD takes you where no magazine has gone before, as you find what a magazine on CD-ROM can offer.

Director 5

The latest version of Macromedia's flagship multimedia creation program, *Director 5*, features dozens of improvements for writing material to appear on CD-ROM and extra facilities for creating interactive material to send over the Internet.

The biggest changes bring it into line with other programs in Macromedia's range, including *Extreme 3D* and *Free-Hand*. Their redesigned interface makes it easier to learn the different programs because they follow the same principles. You can now also use Xtras – small plug-in programs that add extra features – in *Director*.

A common complaint has been addressed with the provision of better text display and more flexible controls for placing text into your material. The painting tools now include the ability to use *Photoshop*-compatible plug-ins like *Kai's Power Tools*, giving you extra control over any graphics you create within *Director*, and there's also an onion-skin tool – as found in many animation programs – to make creating frames of animation simpler.

Even the Lingo programming language at the heart of *Director* has not been left untouched. There are over 100 new commands and *Director* can perform Lingo instructions up to three

times more quickly than it could before.

Other improvements to the way *Director*-made multimedia plays back include the option to pre-load your movies into memory; this way your viewer does not have to wait while the video clip loads from CD-ROM, giving you a more professional result.

Once you've created your piece of multimedia, anyone who owns a computer can use it – not only on a Mac or PowerMac, but also on a PC running Windows 95, Windows NT and the most popular formats for interactive TV. You can also convert your work of art into *Shockwave* format, making it suitable for playing over the Web. Anyone who has the free *Shockwave* player will be able to view your work.

- Price: £1,169. ■ Out: now.
- Requires: LCIII or better, 8Mb of RAM, 40Mb of hard disk space, System 7.1 or later, 13-inch, 256-colour monitor.
- Contact Computers Unlimited on 0181 200 8282.



Macromedia's *Director 5* enables you to create stunning interactive multimedia for CD-ROM or the World Wide Web.

MACROMEDIA MONTH

Macromedia is very busy at the moment: check out reviews of new products *xRes 2.0* on page 88 and *Deck II* on page 96.

Dogz

It's the computer pet you can call your very own. *Dogz* introduces you to five puppies that live inside your Mac. Each one has its own personality and favourite games or places to be tickled.

Once you've met all five *Dogz*, you can choose one to adopt and watch it grow. You can train it to do tricks, rewarding it with choccoy treats when it's good and scolding it with a quick squirt of a spray bottle when it's naughty. It could also become a GuardDogz, keeping intruders at bay from your treasured documents using a password system.

With a terrier, bull dog, scotty, setter or chihuahua to choose from, *Dogz* is a light-hearted utility that adds personality to your Mac. Look out for a review in *MACFORMAT* soon.

- Price: £14.99. ■ Out: now.
- Requires: LCIII or better, 4Mb of RAM, 8Mb of hard disk space, System 7, 256-colour monitor, CD-ROM drive
- Contact: Mindscape on 01444 246333.



You're shown exactly how to coax *Dogz* out of their kennel to play, before you decide which one to adopt.

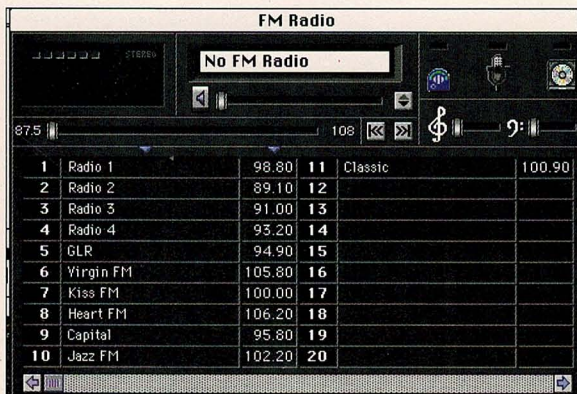
You can let your pet doggy roam free all over your Mac's Desktop or keep it in a playpen where it's safer (for you!).



What shall we do next? You can give your *Dogz* a bone or send it scurrying after the red ball as you throw it.



Radio D2



The radio itself has no tuning or volume controls; that's all done from a Desk Accessory installed in the Apple Menu. A Control Strip is also provided so you can change station without having to leave the application you're currently working in.

French storage company Electronique D2 has released a new product for the Mac. No, not another new hard drive – it's an FM radio.

The radio plugs into the ADB (Apple Desktop Bus) in the back of your Mac and draws power from your Mac. A stereo jack plug connects to the microphone port for an audio connection,

and a simple wire aerial is provided to improve reception. A microphone port on the radio provides a through connection, a nice touch, should you want to have both the radio and a microphone connected to your Mac. Housed in the customary elegantly-styled grey plastic case, the radio itself has no controls. Instead these are provided in the form of software which you then install on your Mac.

The software comprises an Extension driver for your System Folder and a Desk Accessory similar to the *Apple AudioCD Player*, which is supplied with Macs that have a built in CD-ROM drive. The program comes with 11 preset stations, including the national BBC channels, Classic FM, Jazz FM and Virgin Radio. You can tune in to any station you like and save its



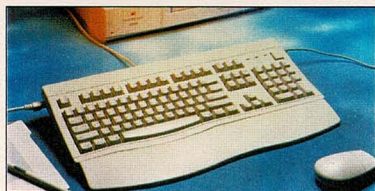
With Electronique D2's new FM radio tuner, you can tune your Mac into any radio station while you work. Hmm, it's got a good beat...

setting. 50 channels are provided and a simple double-click switches between them. Automatic tuning will search for local or remote radio stations and a Control Strip, similar to those found on PowerBooks, is provided to give you instant access to any station and to change the volume. The Control Strip will work on any type of desktop Mac.

■ **Price: £59. Contact Electronique D2 on 0171 833 0009.**

Lindy keyboard

Ease the strain with the Lindy Ergonomic Keyboard, specially designed to make toiling away at your Mac more pleasant.



If you're finding that constantly using your Mac's keyboard is proving a strain on your hands and wrists, the Lindy Mac Ergonomic Keyboard may prove more comfortable. Priced at around £53, Lindy's replacement keyboard features an extended layout with 106

keys and an adjustable wrist pad.

Requiring System 6.0.7 or later, the keyboard also has two ADB sockets so you can connect your mouse and a graphics tablet at the same time.

■ **Contact Lindy Electronics on 01642 765275 for more details.**

Total PowerSMP

If not even the speed of a PowerMac is enough, imagine having up to four extra processors inside your machine. A new PCI card from Total Impact makes this possible, making time-intensive tasks like manipulating huge images in *Photoshop* fly by.

The Total PowerSMP card fits into any of the recent PowerMacs with a PCI slot, including the 7500, 8500 and 9500. You can fit one, two or four PowerPC 604 processors onto the card and programs that can recognise the presence of the extra chips, including *Photoshop* and *QuarkXPress*, will then access them directly while working on your file. Your software will only be

accelerated if it uses the DayStar multiple processor extensions, but nearly every major graphics and design firm is adapting its programs to use the new system. Look out for programs from the likes of Fractal Design, Live Picture, Macromedia and MetaTools, for example. With support like that, multiple processors seem set to define the future of Mac graphics.

You can choose the number of chips you have on the card and what clock speed they run at. A card with a single 604 processor running at 100MHz will cost £1,510, while prices of cards with four chips start from £3,455.

■ **Contact RenderMation on 0181 341 5484 for more details.**

3d Active

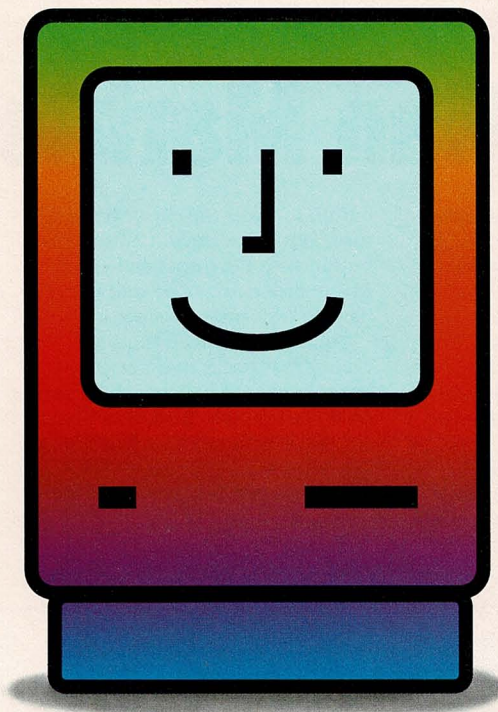
The *3d Active* collection, which scored 76% when reviewed in *MACFORMAT* 36, is now available in the UK. The CD-ROM, which contains models and textures to use in your favourite 3D graphics program, costs £76.38.

■ **Contact Megatype on 01759 388988 for more details.**

PowerBook update

If you use a portable PowerBook from the recently-introduced 5300 and 190 series, you can now get a free System update. PowerBook System 7.5.2 offers improved speed and reliability, and is available on CD-ROM or floppy disk. You must already have System 7.5 on the PowerBooks mentioned above to benefit from the update.

■ **Contact Apple on 0800 127753 for more details.**



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The truth is, only an Apple Colour StyleWriter can help you to take full advantage of the exceptional power and user-friendly features of the Mac OS.™

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Then there's the unrivalled convenience of the Apple 'Drag and Print' system. Just drop your document file on the desktop printer icon – and out comes your print.

All this, in compact printers designed to work in harmony with your Macintosh and blend seamlessly into your home or office.

And for prices that make the alternatives look... how shall we put it? Sad.

To find out more about the new Apple Colour StyleWriter 1500 and 2500 and to receive free print samples, call the Apple Information Centre today, free on 0800 127753.





TrackMan Marble

EASY AS ADB

The Apple Desktop Bus is the type of socket you plug your mouse and keyboard into. Virtually every Mac ever made uses the ADB design.

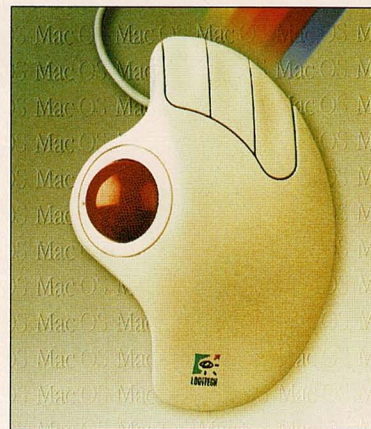
An unusually-shaped substitute for your mouse, Logitech's TrackMan Marble is designed to enable you to move your Mac's cursor around the screen using only your thumb. The idea is simple – if you use your mouse for several hours a day, this should cause less physical stress on your hand and wrist.

There are three buttons, which means you can use Logitech's Mouse-Key program to set up one-click functions for tasks you perform often. For example, you could program one

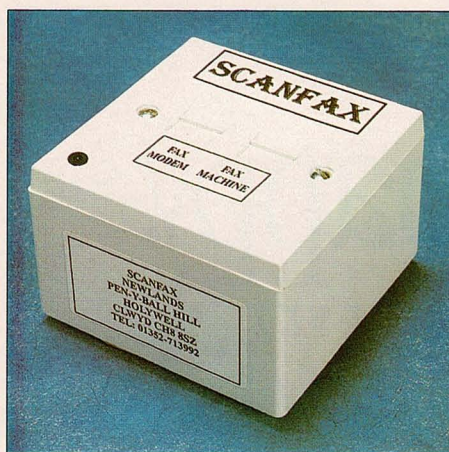
button to make the cursor jump automatically to the Default button (the button with the thick band around it) in any dialogue box, so that you only have to click once to operate it.

The device works using a technology that tracks dots printed on a layer within the ball, which you move with your thumb. TrackMan Marble will work with any Mac that has an Apple Desktop Bus mouse socket and System 6, and costs around £59.

■ Contact Logi UK on 01344 894300.



This odd-looking device is the TrackMan Marble, which makes moving your screen cursor a silky-smooth experience.



Scanfax

For less than 40 quid you can have a 200 dpi black and white scanner – providing you already have a fax machine and fax modem of course.

This ingenious little device enables you to connect a fax machine to your Mac via a fax modem and then use it as a scanner. The Scanfax is essentially an adaptor – you plug the telephone wire from your fax machine into one end, and a fax modem connected to your Mac into the other end. You can then use the fax machine as a scanner, via the fax software that came

with your fax modem. As neither device is connected to the telephone lines, it doesn't cost you a penny!

Most fax machines scan documents at around 200 dots per inch (dpi) in black-and-white, and while this is hardly professional quality, it's good enough for optical character recognition and scanning in the odd bit of clip art.

The Scanfax could prove popular in your office, especially if you have a fax machine and modem but no budget for a scanner. It costs just £37, including postage and packing.

■ For more details contact Scanfax on 01352 713992.

Neato CD Labeller

If you're lucky enough to have a CD-ROM writer perched on the desk next to your Mac, then you'll know the joys of having to use a marker pen to inscribe the contents of the CD you've just made onto one side of the disc. With the increasing popularity of CD writers, MicroPatent has come up with a smarter way to label your discs.

Using one of the templates supplied, you can set up your own labels in a DTP or graphics program, then print them out on the adhesive labels

supplied. The Neato itself is a plastic jig that makes sure the label is centred on the CD and won't come off. The Neato Labeller comes ready supplied with 99 CD labels in white, gold and silver; two disks with label templates in common Mac file formats, including QuarkXPress, ClarisWorks and FileMaker Pro; and an instruction booklet to explain the process. The Neato CD Labeller is £65 plus postage.

■ For more details contact MicroPatent on 0990 561571.

No more dodgy marker pen scribbles all over your CD-ROMs – now you can get labels that will run through your printer, and a widget to stick them on with.



Adobe File Utilities

New on CD-ROM, a collection of programs entitled Adobe File Utilities enables you to convert one file format to another with ease. Word for Word is the first program. You can use this to convert between 250 different file formats, including word processor, spreadsheet, database and graphics

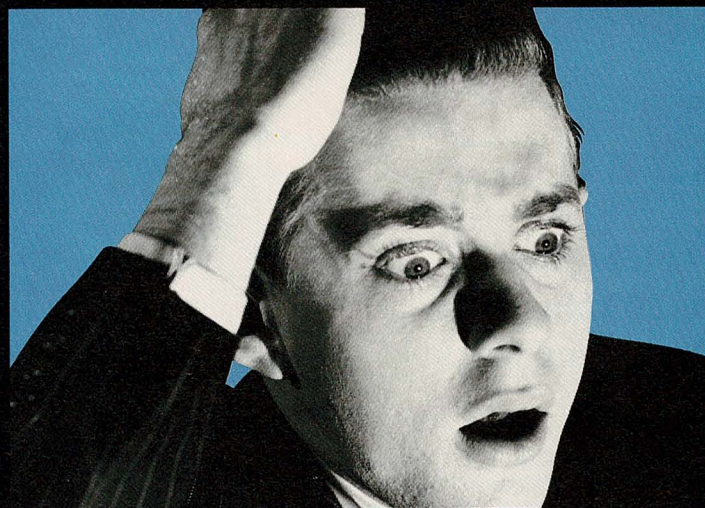
documents. It can also convert file formats for other types of computer apart from the Mac, including the HTML language used for writing Web pages. Word for Word retains all text styling, columns, paragraphs and tabs as it converts your file from one type to another.

You can use DocuComp to compare

two text documents and highlight any differences between them. View the two side-by-side or save a summary of the differences as a new file. There's also a Windows program called Viewer on the CD. This can display a file, even if you don't own a copy of the original program it was written in. It can also display Mac files on a PC.

The Adobe File Utilities CD-ROM costs around £93.

■ Contact Adobe on 0181 606 4000 for more details.



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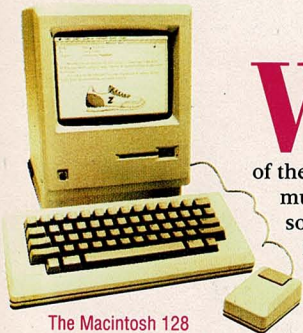


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Did you know...?

As a postscript to last issue's celebration of Apple's 20th birthday, here are 20 things you (probably) didn't know about Apple and Macs.



The Macintosh 128 was the machine that transformed Apple, back in the days when there was no colour photography.

Welcome to factoid heaven. At a time when so much is being written about Apple and the the future of the Mac, and so little of it has much basis in facts, we've selected some *real* facts – snippets of information to give you the real picture of how healthy interest in the Mac is.

We've also gone fishing for little-known details of Apple's history, and caught a bucketload of anecdotes for your enjoyment.

1 Apple engineer Jef Raskin was the main force behind the Mac. He wanted to make a small, friendly computer. But Apple co-founder Steve Jobs was responsible for giving the Mac its mouse and graphical interface.

2 Apple co-founder Steve Jobs came up with the company name while he was visiting a farm in Oregon.

3 Common lore has it that Apple's first computer was put together in a garage but the man who made it, Steve Wozniak, says he actually built it at work in the offices of Hewlett Packard and at home in his flat.

4 Raskin named the Macintosh after a favourite type of eating apple – the McIntosh. He says the spelling was changed to avoid any possibility of a lawsuit from an electronics firm which was also called McIntosh.

5 The icons used in the first-ever Mac interface design were created by a graphic artist called Susan Kare.

6 The pointing device that's called a mouse nowadays is synonymous with the Mac, but it was invented back in the 1960s. The creator was Doug Engelbart, who worked at the Stanford Research Institute in the United States.

7 Former Apple president John Sculley is credited with bringing good business sense to bear on the wild creativity of early Apple. He came to Apple from global drinks corporation Pepsi-Cola.

8 Mac sales have increased every year since 1985. It took nine years for Apple to sell its first ten million Macs; but the second ten million have been snapped up in a little over two years. [Source: Apple]

9 And the most recent sales figures confirm this. The Mac was the number one selling brand of computer in the UK during the last three months of 1995, with a 13% share of the overall personal computer market. [International Data Corp]

10 A quarter of all people who browse the World Wide Web use a Mac. [META Group]

11 Apple was the most popular choice for home buyers in the United States during 1995, while it was the choice of 15% in the UK. [IDC, Wharton Information Systems]

12 Mac owners are generally happier with their machines than those who bought other computers. A survey of computer owners rated Apple top for reputation and the Mac top for setting up the machine, having helpful manuals, upgrading, connecting other devices easily and the quality of its display. [JD Power and Associates]

13 87% of Mac owners who buy a new computer choose to get another Mac. [Computer Intelligence Infocorp]

14 Mac owners love to buy software, getting so many programs that they spend an

average of 75% more than owners of other types of computer. [IDC]

15 Nearly two thirds of all multimedia programs, including some that may never appear on a Mac, were written using a Mac. [Dataquest]

16 Nearly half of the graphics you see on the World Wide Web were created with a Mac. 41% of Web page designers use a Mac – more than any other type of personal computer. [Mirai]

17 So Apple's in trouble and is suffering record losses? It depends where in the world you are – Apple UK actually enjoyed record sales and profits during 1995.

18 Apple dominates the growing digital camera market. More QuickTake cameras have been sold than all other types of digital camera combined. [BIS]

19 There are more than 900 programs available for the Mac that you can't buy for any other type of computer.

20 Mac software costs less to create than that for other computers. For every pound a company earns on the programs it sells, it will have spent on average 50% more creating, and providing technical support for, a Windows program than for a Mac program. [IDC]

RICHARD HILL

12 years later, the PowerMac 9500 is Apple's fastest-ever.



MAC SALES 1984-1995

1984	300,000
1985	200,000
1986	300,000
1987	560,000
1988	890,000
1989	1,120,000
1990	1,280,000
1991	2,090,000
1992	2,500,000
1993	3,310,000
1994	3,850,000
1995	4,500,000

[Source: Apple]



THE DAME WAS SMOKIN' AND I DON'T MEAN
CIGARETTES. I'D JUST GOT BACK FROM A
LIGHT LUNCH - A GREASY TWO POUNDER WASHED
DOWN WITH A RYE ON THE ROCKS.

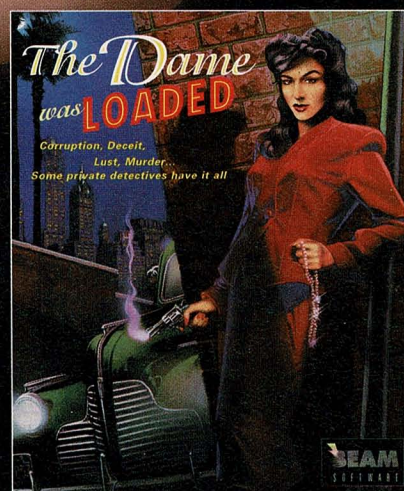
THE OFFICE DOOR WAS OPEN AND SO WAS MY
MOUTH. SHE WAS A REAL LOOKER! BUT THE
SMELL OF TROUBLE WAS AS STRONG AS
EXPENSIVE FRENCH PERFUME.
BUT I WAS HOOKED. I'VE ALWAYS BEEN A
SUCKER FOR A DAME IN DISTRESS AND DIS
DRESS WAS SO REVEALING THAT HER CLEAVAGE
LOOKED DEEPER THAN THE GRAND CANYON.

YEP. THE DAME WAS LOADED.

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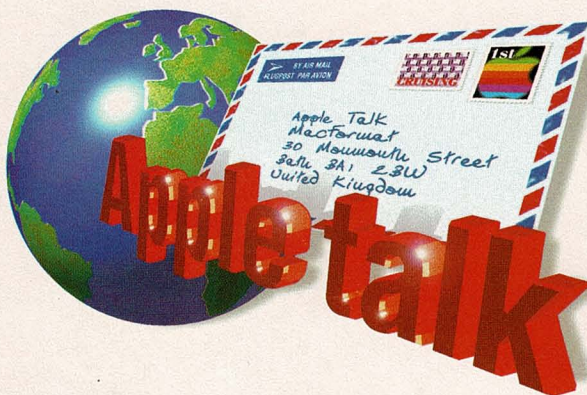
<http://www.philipsmedia.com/media/games>

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Here's your chance to have your say on anything Mac-related. Write to: Alex Summersby, AppleTalk, MACFORMAT, 30 Monmouth St, Bath BA1 2BW.

Remember that annoying ad about registering to vote or your voice won't be heard? Write to MACFORMAT, get heard and get a binder in return!

NOW HEAR THIS!

It's no rumour – every letter and postcard published on these pages wins a MACFORMAT binder. Yes, it's true – and here's a word to the wise as well: if you like the sound of these binder things, you can turn to page 117 and order one of your own, on the QT. We promise we won't say a word.

Build a better mouse?

ALTERNATIVE INPUT DEVICE

As a two-thumb typist I read MACFORMAT's extensive coverage of input devices [MACFORMAT 30] with great anticipation. Some time ago I heard about an 'alternative' keyboard. Two keypads mould around the hand in its natural rest shape and each finger is poised over a key. Ten characters are possible with a single stroke, and more using combinations – for instance, 'H' with simultaneous pressing of both index fingers. The typists' hands or fingers hardly move, so top typing speeds are far in excess of those possible with conventional keyboards, plus RSI is far less likely. I would

Silly Things Your Mac Says, number 431, from John Gibbs, who says he got this message when using *Photoshop*. 'It came up,' he explains, 'when I had two PICTs open, closed one with the "Close" button on the window, and then clicked on the main part of the other picture, which was not selected.' So I think what it's trying to say is, 'Sorry, you've got ahead of me there...'

dearly love to hear from anyone who has any information about this product or prototype.

James Kavanagh
London SE19
100736.631@compuserve.com

We'd be interested too, in this and any other unusual input or control devices, for an article planned for the near future.

Special Delivery

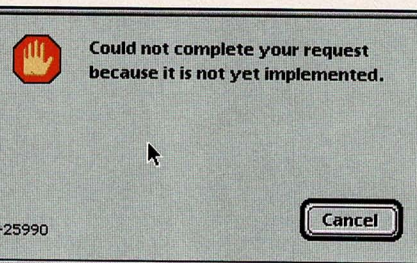
A CORRECTION

Your recent review of Multimedia Authoring Tools [MACFORMAT 36] contained several errors in regard to our authoring tool, *Special Delivery*, which we would like to correct.

The product does include a cut-down player which allows for the royalty-free distribution of presentations. In addition, the reviewer did not realize that the product supports scrolling of both text and pictures.

The product is no longer available from Gomark, but may be ordered directly from Interactive Media Corporation for \$289.00 including shipping, by phoning 001 415 948 0745 or by e-mail at: **Marketing@imcinfo.com**

Your reviewer also did not comment on the differences in the efficiency of authoring and editing with each of the products reviewed, a distinction which is important. Another consideration which was not covered was the amount of RAM required to run a completed project. We believe *Special*



Delivery is one of the only products which can actually deliver a full-fledged project on 4Mb machines. We encourage your readers to look at the sample projects included on the MACFORMAT Cover CD and to visit our Website at <http://www.imcinfo.com>
Peter N. Rosenthal
Interactive Media Corporation
via FutureNet

We're happy to set the record straight.

System 8 wish list

OBJECTS OF DESIRE

What I'd like to see in System 8 is a button that reverts the System to what it was before a certain date. This will trash those horrible Preferences and empty folders that get left behind after you try demos. It will eliminate those cute but unnecessary applications, Extensions, fonts and funnies that eat up memory and cause frequent and infuriating crashes. It will save the need to constantly wipe my hard disk, then reload and replace the useful bits – if I can remember what they were and where they came from.

Alternatively, I could stop opening MACFORMAT CDs and blow the dust off my typewriter. But that wouldn't be so much fun!

Doug Browne
Cambridge

Then again, why can't demo makers write routines to clean up after themselves and wipe all the Prefs, fonts etc they install?

THE (EVER-GREATER) GREAT 'PORN' DEBATE

In MACFORMAT 32, reader Tony Wighton wrote to protest at the 'porn' on our Cover CD in the form of a strip-poker game called Strip-Mac. Your responses continue to flood in...

I have followed with interest the debate over the supposed pornographic content of MACFORMAT Cover CDs. I have no real problem with people expressing their fantasies within the confines of their own homes. But there is a very real danger that in pursuing fantasy some begin to inflict themselves on society at large. No doubt your readers are as appalled as I am at the incidents in which children or women are sexually abused or even killed. Selfish individuals have become so driven by their fantasies that they burst out of their homes and into the lives of innocent people – simply for their own self-gratification.

So what has this got to do with 'harmless games'? They may be harmless for most people but we must realise that they can have

a detrimental effect on others. The 'game' may eventually be played on the streets or in someone else's home – against their will. By all means let people have a bit of fun as long as that's where it stops. But you do tend to become what you fill your mind with and society is not well served by individuals whose only aim in life is giving expression their fantasies. If there is a defence for these games based on something other than that of a person wanting 'to do their own thing' or by attacking the faith or religion of another person (Rob Bailey, MACFORMAT 34), I'd be pleased to hear it.

Iain Fairweather
via FutureNet

And from a perspective I can only call different:

I really do not get it. Why are you as a nation so frustrated about sex? People write to a computer magazine to complain about a game

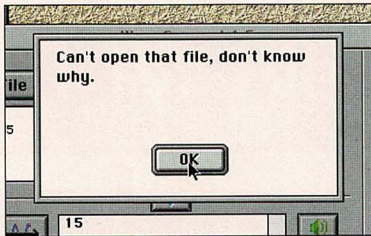
which is a text-based strip-poker program in which you have to be the graphics. While this happens, your Royal Family wants to be a tampax, suck toes, or nag about each other on the telly. Get real! What's wrong with sex? Where do you think you come from?

And about minors seeing 'dirty pictures' – so what? If they get aroused from it, they are obviously old enough to handle it. If they don't, they probably just think it's funny to see people naked. It is in the eye of the beholder. If you get worked up about something it is only because you get aroused. So who is the pervert? I think it is the people who immediately think of their kids if they see porn or sex-related artefacts.

Get a life, get a constitution, get real, get Internet for your kids!

Pieter Visser,
The Netherlands, via FutureNet

Food for thought there. Dare I ask, any more views?



Now this is more like it! Lucas Gatzoulis in Greece got this message when he tried to open a sound file. He says it's one of the silliest messages a Mac can produce, but don't you wish they were all this direct? If your Mac has given you a silly message, capture it by hitting **[command] [shift] 3** and send it in to us by e-mail, or on disk to 'Silly Things Your Mac Says' at the address opposite.

Buy the OED, but not the Net THE 'S' WORD - 'SPEND'?

I was concerned to read your reply to Alex Lewis' well-argued letter in *MACFORMAT* 32 concerning the price of the OED. I remember some years ago seeing a picture of Kingsley Amis sat in front of a bookcase holding the full OED. I was impressed. Here was a man who was so important that he needed two full volumes of S words! The OED in paper form is a status symbol of the highest order. The CD version is just that, a CD version. A price of £100 would be reasonable – and pure profit to the OUP.

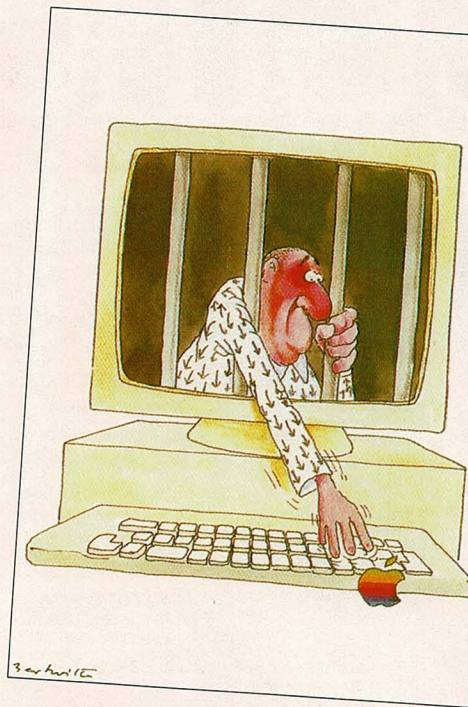
Speaking of costs. Lots of my friends are now so hung up on the Internet that they see my communications via snail mail and real telephone as a bit quaint. I am getting the distinct impression that I am missing out on something, but then I start to add up the cost: a modem fitted to my Mac, say £200; payment to a service provider, say £240 a year; phone time, say £50 pa. This looks like £300-plus per year, real cost, for the advantage of being able to e-mail a few friends and surf the blessed Internet.

Is it that good or are some people talking the whole thing up like some huge helium balloon? I do realise the potential, but am I likely to get £300 worth of fun and information every year? Or am I sounding like Mr Lewis?

G P Keeling

Newark, Notts (by snail mail...)

Personally, I wouldn't be impressed so



much by the importance of someone who owned the full OED as by his extravagance. I own a copy of the compact edition (four pages of the OED to each page, photographically reduced), which I got for £25 as a book club premium, and a CD edition would be even cheaper to produce, as far as physical materials are concerned. Any other views on the cost of the OED on CD?

As for the value of the Internet...

Imagination is the only limit IN PRAISE OF THE INTERNET

Michael Veal's letter in *MACFORMAT* 34 demonstrates an exceedingly limited view of the Internet and its value. It is far more than just *Star Trek* fans. As a teacher I have found that the Internet, in particular the World Wide Web, is a huge source of valuable information and resources. It allows students and teachers to learn and share information with a huge amount of freedom and latitude. For example, I have a WWW page (<http://www.uq.edu.au/~zzredcol/index.html>) that I use to share information about my subject area with others on the Net.

Michael comments that 'the Net is a classic example of computers for their

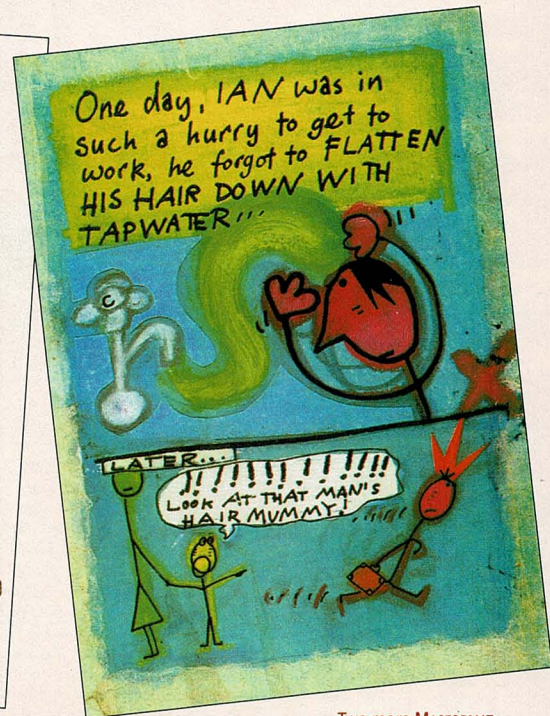
own sake'. I would argue that the opposite is true. The Internet, and the computers that serve it, are simply tools for individuals and groups to share almost all forms of information. How it is used is really only limited by the motivation and imagination of the people using it.

I have got to say, if you want to know something now, you are better off connecting to the Net. Anything you might need will be more easily found there than in most libraries. For this reason I plan to introduce into my classroom a number of computers that are permanently connected to the Net. I believe that it represents a forward step in education – providing all students with a new and potentially more meaningful way to learn. It will not take over education or change it significantly, but it will improve the quality of learning.

Chris Blundell
Redlands College
Brisbane, Australia, via FutureNet

Don't miss our cover feature about the Internet next issue, entitled 'Where it's @' or 'What's in it for me anyway?'. For more details, see page 137.

MF



Two more *MACFORMAT* binder winners – left, a card from Maarten van Houwelingen of Hardinxveld in the Netherlands (PCs? Who said anything about PCs?); and right, a card by the unique Annie Lawson (PO Box 910, London SE14 6DD), sent in by Michael Duerden of London SW3. Remember, whenever you write to *MACFORMAT* or enter one of our competitions, any eye-catching postcard could win you a binder!

HOW TO GET IN TOUCH WITH MACFORMAT

- Our address for letters is on the opposite page – the shorter your letter, the better its chances of being printed. Longer letters may appear in our regular 'Talking Point' section (page 115 this issue). If you'd like a letter included in 'Readers' Corner' on our CD-ROM, make sure it contains no defamation or obscenity, then send it in as a *TeachText* document on a disk marked 'MACFORMAT Readers' Corner'. Include your name and address, and note that we can't return your disk.
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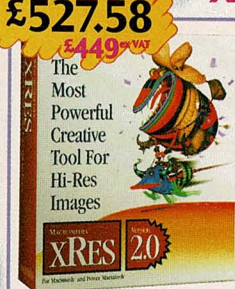
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QK	Quark Xtensions (we carry a wide range) please call		
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HP66	HP DeskWriter 660c (colour and mono in one)	£289	£339.58
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M17V	Apple 17" 1710 AV Monitor	£745	£875.38
M20D	Apple 20" Trinitron Monitor	£1275	£1498.13
RD10	Radiust Intellilite Colour 20" Monitor	£1399	£1643.83
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SPRM	Supra FaxModem (top quality, Gpi III 28.8 baud)	£179	£210.33
TLPP	TelePort Platinum (28.8 modem from Global Village)	£240	£282.00

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DSMT	DOS Mounter Plus (read/write PC floppies on your Mac)	£55	£64.63
MLPT	MacLink Pro (best Mac/PC link with 100's translators)	£195	£232.38
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SPWD	SoftWindows 3.0 (Windows 3 for PowerMac)	£199	£233.83
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CLEM	Emailer (great mail program, supports many services)	£55	£64.63
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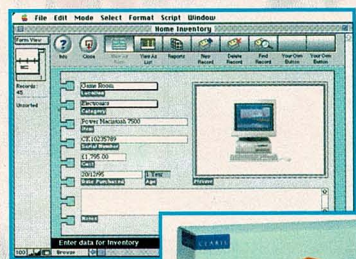
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NUM Num Utilities 3.2 (best selling utilities package) special
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LTSS Looney Tunes (famous cartoon screensaver) (£17) £19.98
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ARTT Arthur's Teacher Trouble (interactive story book) (£29) £34.08
ARTB Arthur's Birthday (more Arthur) (£29) £34.08
BKSCD Book Shelf (superb, for everyday reference needs) (£25) £29.38
GMRD Creative Writer (DTP for kids) (£25) £29.38
CINI Cinemania 95 (19000 movie reviews and more) (£25) £29.38
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7) A10A A10 Attack (the best flight sim around) (£39) £45.83
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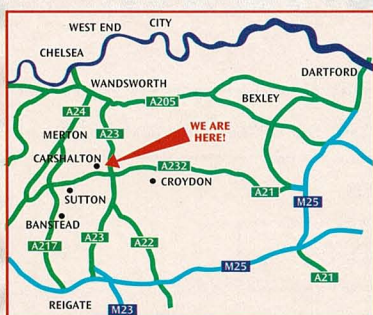
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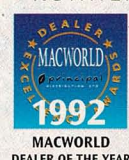
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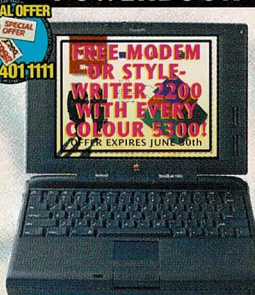
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SPOT ON!

Printing your documents out
is one of the most critical
functions your Mac has.
Lindsay Bruce shows you
the techniques to do it
easier, faster and
better.

In the last 12 years, the Mac has changed the way we work forever. Nowhere has this been felt more than in the publishing industry, where the Mac has revolutionised the way that paper media like newspapers and magazines are produced. 20 years ago journalists would use a typewriter to bash out copy; designers would use pencils, cow gum and scalpels; and printers would use movable type. Today they all use Macs to do in minutes what either would take days or just wasn't possible previously.

It isn't just the Mac that you need to thank. Whether you're producing pages for a magazine, graphs for a business meeting or a letter to a friend, it takes two to output. And just as you want to get the best from your Mac, you can benefit from knowing how to get more from your printer.

The first important point is an obvious one, but often overlooked. If you're not happy with your output, it may be that you don't need tricks or special techniques, only a better printer – or at least, one that matches your needs better. We see it

happen all the time – people invest in a £2,000 Mac with all the bells and whistles and then shackle it to a naff £100 printer.

Sometimes it's all too easy to forget that what really matters is the page that drops out of the printer. This may be the age of CD-ROMs and the Internet, but people will always read letters and books and magazines. Printing is important – 'nuff said.

So how do you get the best out of your Mac and your printer? Ah well, you need to know a bit about how it all works first. Once you understand the relationship between Mac screen and paper, you can start thinking about how you do things quicker, easier, and better.

So first off, we'll explain how your Mac deals with graphics and text, and explain the best ways to transform the digital information inside your Mac into an image on paper. Then we'll look inside your printer and find out how it works, and how to get the best from it. Finally, on page 75, we test some of the latest affordable colour printers.

FREE SOFTWARE!

On this issue's Cover Disk you'll find some handy printing utilities that will enable you to print things faster, smarter, or better. Oh, and did we mention the two *free* fonts?

Continued on next page

The art of print

It's easy to get professional print-outs of your images, once you know the principles your Mac follows to achieve its results.

Years ago you weren't able to print out pictures on your computer, making it only slightly better than a glorified typewriter. The limitations of the machines even led to the development of ASCII Art – images made out of carefully-arranged letters and numerals. Things are different now – your Mac and your printer can make beautiful images together.

But when you've printed a picture, why doesn't it look as good as it does on your Mac's screen? Here are some fundamental aspects of how your system treats graphics. Master these and you'll get more control over the quality of your output.

ASCII

American Standard Code for Information Interchange. All computers work in terms of binary codes, not letters of the alphabet, and different computers encode characters differently, so ASCII was devised as a universal system of code numbers for common characters – capital A, for instance, is 65.

Resolution

Resolution is measured in dots per inch and is an indication of how much detail a device can display, print, or scan at. Images displayed on your monitor are at a resolution of 72 dpi (dots per inch). This is fine for on-screen purposes, but for a print-out it's diabolical. Most standard

printers have a resolution of 300 dpi or more. This is needed to give graphics and text smooth-looking edges to the naked eye.

Look closer and you'll see a stair-stepping effect on curves and diagonal lines. Despite the extra detail the printer offers, images it prints often don't seem to have the detail and smoothness you saw when it was on the screen. That's because the printer has to use special techniques to reproduce the range of colours or tones in your image.

Colour printing

Your Mac uses combinations of three base colours – red, green and blue – to produce each colour and tone you see displayed on its monitor. White is produced by a combination of all three at maximum intensity, black by the absence of all three. This

RGB system is based on a visual effect called additive colour.

Colour printers, on the other hand, use cyan, magenta and yellow as their base colours. In theory, you should get black when all three are mixed at maximum intensity, but in practice it looks like a rather muddy brown. For this reason a fourth colour – black – is added. It's known as the key, which is why the system is called CMYK-for-key rather than CMYB-for-black. The effect the CMYK process relies on is called subtractive colour, because you'll see what's left of the white light that falls on the paper after the inks have absorbed their own specific component.

The perfect match

The CMYK standard was arrived at over many years of intensive research and was found to give the best results for printing in colour. However, it creates an immediate problem in that the RGB values on

your monitor don't match the CMYK values of the printer. Your Mac has to do some clever shuffling of colours before it can send the image to the printer. This creates the perpetual problem that the colour you see on the printout is hardly ever like the colour you see on screen. Other matters contribute to this problem. Your perception of colour on the screen is affected by the environment you work in. The model of printer and the type of ink used, even the paper, can also have a dramatic effect.

The result of all these factors working together could be that your printed images will look weaker and flatter than the image you saw on-screen, unless your printer's software compensates for the differences between the two colour systems. Apple's ColorSync technology is designed to do just that. It comes with every new Mac, Apple printer and System software update, and works by

referring to 'device profiles' of many printers, monitors, scanners and so on, adjusting output and screen display to match as closely as possible on the devices you're using.

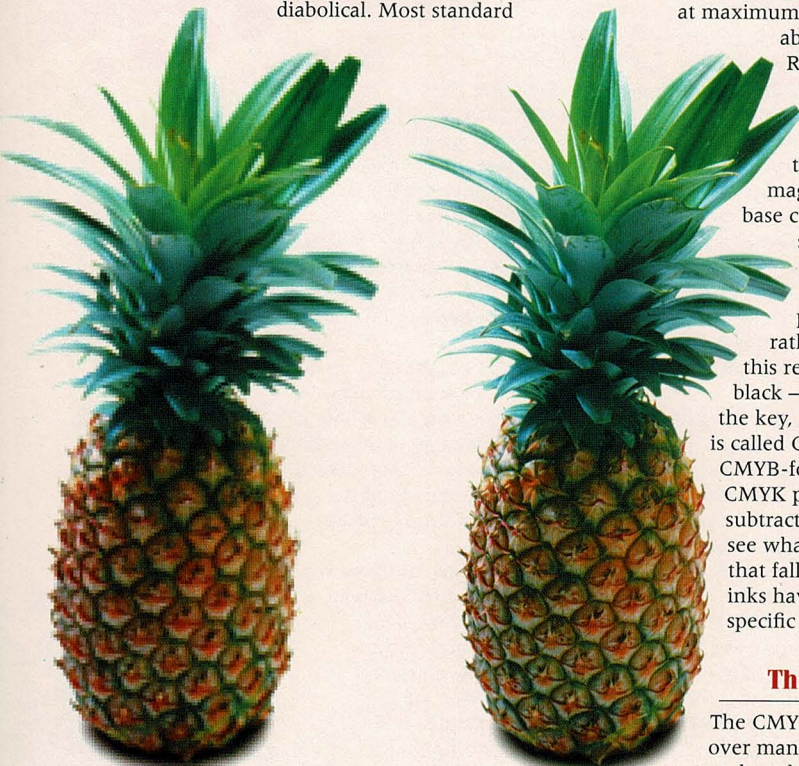
There are many other colour matching systems; if you buy a colour printer, it's almost certain to have some sort of colour-matching system provided by the manufacturer.

Programs like *QuarkXPress* also enable you to choose different ways of defining the colours you want. Using proprietary colour reference systems like Pantone, Trumatch or Focoltone will help you to predict how your document should look when printed, because you can use paper swatches to pick your colours (though sadly not see them accurately on-screen).

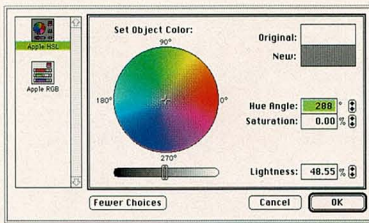
Pantone has even devised an ingenious program called *ColorDrive* which enables you to create colour 'libraries' – palettes of colours ready-calibrated for your target output device – which are 'application independent' and can be imported into many leading DTP and graphics packages. It's a great way of ensuring consistent colours across the various programs you use. (It costs £140; call MacWarehouse on 0800 181332.)

Whichever system your program or printer uses, you should set it up carefully and do a few test print-outs until you get the closest possible match to the colours you see on your monitor. Apple's ColorSync has the edge here because all the work has been done for you – all you need to do is choose the ready-made profiles to match your kit. Other systems need a bit more setting up, but it's worth the effort.

If you create lots of colour graphics, it's worthwhile defining your standard



The image on the left is a screen shot at actual size – at a resolution of 72 dots per inch. The jagged edges of the pixels are clearly visible. On the right, however, is the same image at 300 dpi and it looks much smoother.



The colour picker uses hue, saturation and lightness – much easier to manipulate than RGB.

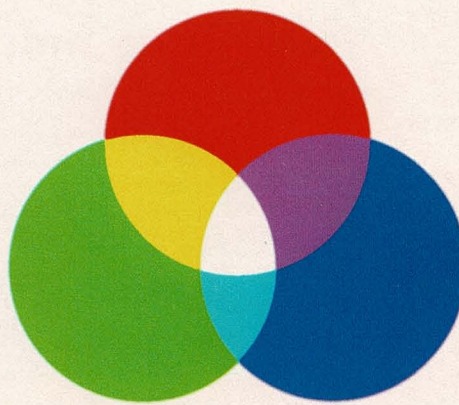
colours within programs such as *PhotoShop*, *FreeHand*, *Illustrator*, *PageMaker* and *QuarkXPress* to match your output device – ‘warm red’, for instance, is 100% yellow plus 100% magenta. Use the colour picker that comes with ColorSync to note down each colour’s CMYK or RGB values and try a few test prints and see which ones your printer is best at reproducing. .

Colour in depth

Every colour image on your Mac has a ‘colour depth’ value. This is simply the number of colours used to display the image on your Mac’s screen.

Your Mac uses a block of its memory called VRAM (Video RAM) to store details of the on-screen image. The VRAM can be boosted with the help of a graphics card, and the bigger your Mac’s VRAM is, the more colours it can display – from 1-bit (black-and-white) through 8-bit (256 colours) and right up to 24-bit (16.7 million colours). The bit numbers refer to how much memory is used to describe each colour: see the ‘Colour depth question’ box below for the full list.

If your Mac can’t display thousands or millions of colours on screen, you may be tempted to cut 16- or 24-bit images down to 8-bit since you can’t



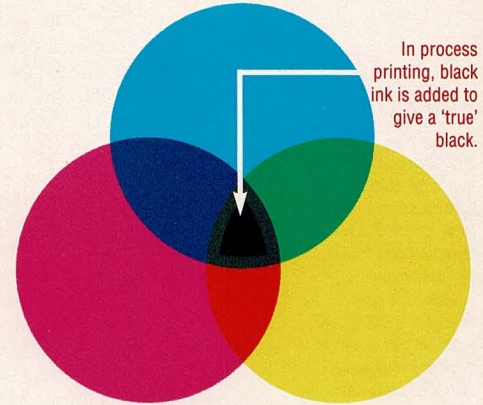
Mix red, green and blue light equally and you get white. This is how your monitor makes the colours you see on-screen.

tell the difference on the screen. But this will have a huge effect on the quality of your printout, even on a mono printer. Wherever possible, you should print colour images at their original colour depth. This will ensure that the printer has enough information to reproduce subtle colour gradients without the same banding you see on-screen.

Half-tone

All printers use between one and four basic colours to produce images – cyan, magenta, yellow and black at most. Mono printers use only black, and a few printers use the three primary colours without black.

The real job of any printer is to reproduce your images as accurately as possible, whether it’s in colour or black-and-white. The problem is that nearly all pictures contain more than four colours or shades. The obvious solution would be to blend the four base colours together to come up with



Mix cyan, magenta and yellow, and you get muddy brown instead of white – here you’re dealing with inks, not light.

In process printing, black ink is added to give a ‘true’ black.

the different colours, shades and tones used in the image, but a printer can’t do that – it can only print separate dots of distinct colours.

The most common way round this is to use a half-tone screen. The printer prints a mesh of dots, with tiny amounts of space in between, to give the optical illusion of different shades. There are three ways of doing this. The first is to vary the size of the dots to produce a range of tones. A light grey, for example, would use very small dots, while a dark grey would use larger dots, which might even run together. The spacing between dot centres doesn’t change.

This half-tone screen is used to give the illusion of a broad spectrum of colour, when in fact only a maximum of four colours of dots is present – okay, five if you count the paper colour itself.

The second method is to vary the density of the dots according to how light the colour required is. The problem with this approach is that it tends

WHAT’S RGB?

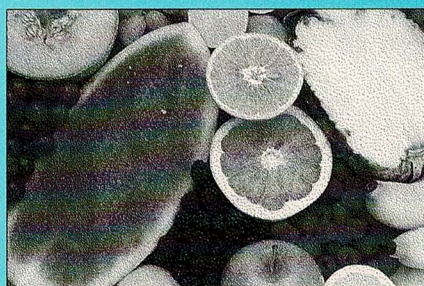
Red, green and blue. These are the three base colours used to make every colour you see on screen. Unlike the ink used in your printer, your monitor uses light, which has an additive effect. In short, when you mix all three colours together you get white instead of brown. This difference accounts for some problems when trying to reproduce colour on your printer.

Continued on next page

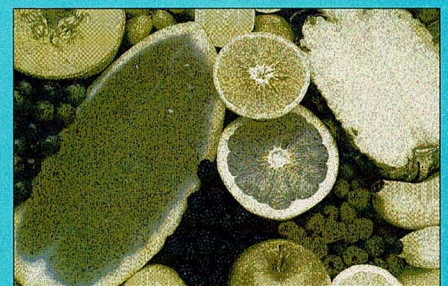
THE EVER-SO-FRUITY COLOUR DEPTH QUESTION

Colour depth is a measurement of how many colours are in a particular image on your Mac. It’s often expressed as the number of *bits* of computer data available to define the colour of each pixel (picture element) within an image.

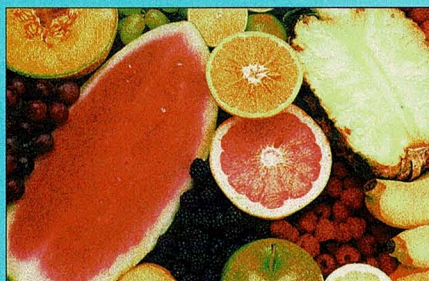
1-bit	Black and white (no greys)
2-bit	4 colours
4-bit	16 colours
8-bit	256 colours
16-bit	32,768
24-bit	16.7 million
32-bit	16.7 million + 256 greyscale alpha channel



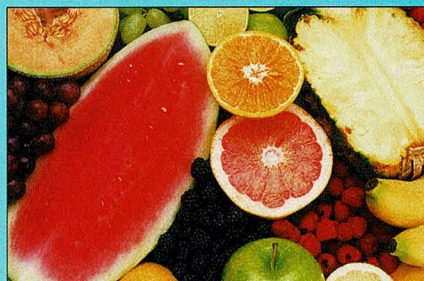
1-bit. This is the picture in pure black and white. It looks like a badly printed newspaper through a snow storm.



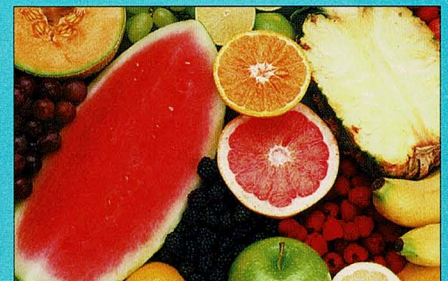
2-bit. In four colours the picture looks worse, as your Mac tries to display the image accurately and fails.



4-bit. In 16 colours, it looks better than black and white, but the fruit still looks like something from *The X-Files*.



8-bit. With 256 colours, you can see more detail and the colours are more accurate, but it’s still a bit fuzzy.



16-bit. Thousands of colours. This is as good as it gets on most Mac monitors and colour desktop printers.

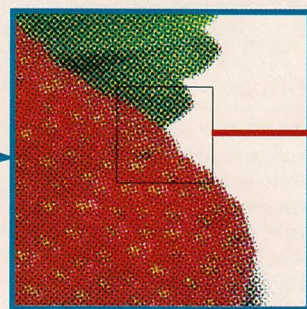
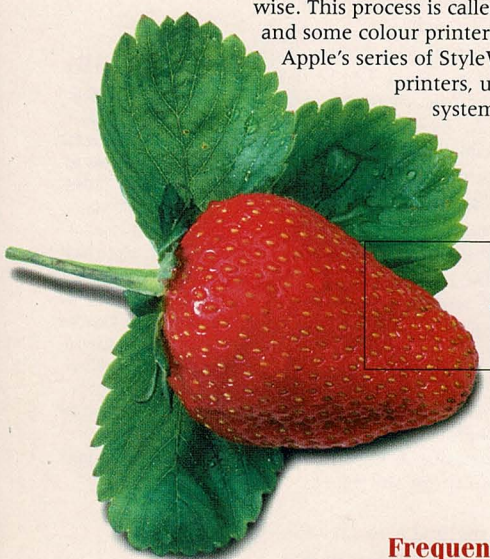
CMYK

Cyan, Magenta, Yellow and Key (black) are the four base colours used in process printing. After exhaustive research, it was found that these colours produce the best results and the widest possible colour range in colour printing. All colour printers use CMY, but some cheaper ones omit the black to cut down the cost.

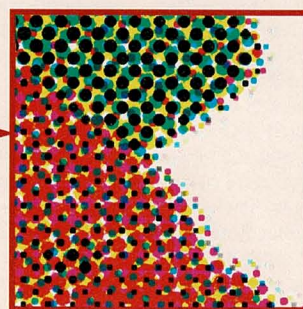
to produce colour bands in the image, so this technique is often used in tandem with the first technique.

The last method is similar to one your Mac uses when it opens a picture that has more colours than it can display on your monitor. It compensates for the fewer colours by generating a dot pattern over the colours in the image that it can't display, in much the same way as a printer uses colour dots and white space. The dot pattern appears random but is carefully worked out to intrude as little as possible. The overall effect from a distance is that the colours in the image appear quite accurate. Viewed close-up the image looks like it has a snow storm in front of it, but this is better than the bizarre mix of garish yellows, blues and reds you would see otherwise. This process is called dithering and some colour printers, such as

Apple's series of StyleWriter inkjet printers, use a similar system.



Zoom in on any colour printout...



...and you can see each half-tone dot.

Frequency

A colour printer has a maximum of four colours, mono printers only one. In order to reproduce colour gradients, your printer has to use a half-tone screen – a mesh of dots that give the illusion of many different colour tones.

It follows that the smaller and closer together a printer can print half-tone dots, the better the image will turn out. The term for this is screen frequency. A printer's screen frequency is measured in lines per inch (lpi) – the number of rows of dots the printer will print in each inch of a half-tone image. This number is set by the printer's manufacturer to produce the best overall results, but it can be changed in programs such as *Adobe Photoshop* to achieve special effects or to fine-tune a printout. The program then creates its own half-tone screen and tells the printer where each dot should be.

However, if you increase the half-tone screen beyond the manufacturer's setting, you are likely to create

some undesirable patterns. This is because your printer has a set resolution determined by its mechanism. If you increase the screen frequency too much, the printer will struggle to produce dots small enough to fit in the space you've specified without them overlapping. The result can produce some strange patterns which can be unpleasant to look at after a while...

Just to confuse matters further, the half-tone screen can be applied at

different angles. By default, black is printed at 45° from the top of the page. This has been proven overall to give the most pleasing result, but you can change it to any angle you like. This is sometimes done to achieve special effects or to fine-tune the screen to suit one particular image.

All together now

So how do half-tone screens work when you are printing in colour? Each colour is printed to the paper separately in the same way that a monochrome device would print black. Each colour has its own half-tone screen, but if they are all applied to the page in the same direction, you get a rather ugly looking pattern called *moiré*, which, while not immediately obvious, is recognised subconsciously by the human brain as a pattern of dots.

Instead, the half-tone screens are applied at different angles so that your eyes interpret the resultant, seemingly random distribution of dots as a smooth image.

What resolution?

How does the way your printer deals with colour or greyscale images help you get better print-outs? Imagine a colour image on your Mac's monitor. There is one colour value for every

pixel within the picture. Each pixel in your monitor can display virtually any colour value, assuming you have enough VRAM (and remember, the more VRAM you have, the more colours you can display on-screen). But because it only has four colours of ink, a printer has a maximum of four colours per pixel in the image, while mono printers have only black.

Say you reduce the resolution of the image until it has the same number of

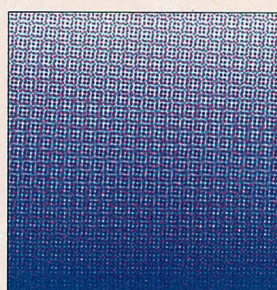
dots per inch as the printer. 300 dpi is the standard resolution of a laser printer. In order to reproduce the colours in the image, the printer has to use a half-tone screen; but this means that the printer can't print one dot for every pixel in the image.

The paradoxical result is that some fine detail will be lost, no matter how high the resolution of the image on screen. Higher-resolution images also take much longer to send to the printer and may have no effect on the quality of the final print-out.

The rule of thumb here is that you should make your on-screen image's resolution between two and two-and-a-half times the screen frequency of the printer. For example, on a 300 dpi printer with a screen frequency of 60 lpi, you should make your image somewhere between 120 and 150 dpi.

This will give the printer as much information as it needs to make a decent reproduction of the image on paper. Any higher than this and you're wasting your time (and disk space to store the file); any lower and the printer won't have enough information to recreate the image faithfully. This makes sure that the printer gets enough information to reproduce a sufficiently accurate copy of the image on paper, while not overburdening it with data that it won't use.

Continued on next page



Increasing the half-tone screen may not always work. The colour blend on the left looks better, yet its half-tone screen is half that of the one on the right.

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Font of wisdom

The next hurdle to making your print-outs better is your fonts. Which type of fonts do you have and what's the difference?

Whenever you create any kind of text on your Mac, you have a choice of which font you'd like it displayed in. Fonts are sets of characters with different styles and appearances. Your Mac comes with around a dozen already installed, and you can buy new ones. There are hundreds of thousands of different fonts out there to suit any taste or style.

There are two main types of fonts on the Mac: PostScript and TrueType. The PostScript system was developed by graphics firm Adobe and comes in two parts: a screen font is used to display the font on your Mac's screen, while a printer font is used for printing. Since System 7.1, both files are kept in the Fonts folder within the System Folder.

The difference between the two is that the printer font is a vector file – each character is described mathematically. The screen font is a bitmap file, which means that each character is made up of pixels (See the 'Bitmap and vector' box below for more details). The idea behind this scheme is to display characters on-screen quickly, while being able to print them at the highest possible resolution.

TrueType works slightly differently. A TrueType font is a single vector-based file containing mathematical descriptions of each character. What you see on-screen is derived from the vector information contained within the font. The result is that you are guaranteed that what you see on-screen is what you will get when you print it out. So how come PostScript can't work this way? The answer is

QUICKDRAW

The Mac's native graphics imaging system. It's used for displaying images on screen as well as printing them out. All Mac printers can handle QuickDraw graphics, but it's widely accepted that PostScript-based graphics produce better results.

ATM

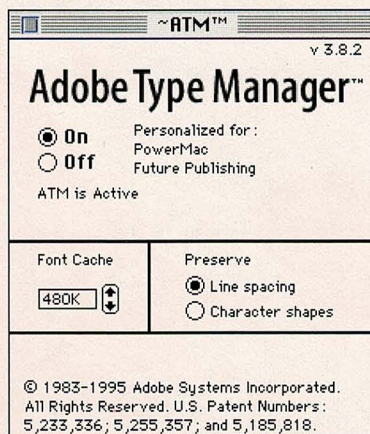
ATM is included when you buy Adobe fonts or most Adobe software, including *Acrobat*, or you can buy it separately for just £29. For more details and the address of a supplier near you, contact Metrology Software on 01753 690099.

BITMAP AND VECTOR

Whether your Mac is dealing with fonts or with images, there are two formats in which it can handle the information it uses to form the shapes. A bitmap file is simply a list of every element – usually a set of pixels – used to compose up the image. Each element is recorded, along with its position and colour, in the file rather like a map – hence the name bitmap.

Vector-based files are very different. The image is described by a series of mathematical equations which define each line and curve. The printer simply applies these equations to recreate the original image.

The beauty of this system is that it doesn't matter if you print it on a 150 dpi inkjet printer or a 2,400 dpi image-setter; the picture will come out at the device's highest resolution. The drawback is that not all printers have the processing power to cope with these types of images.



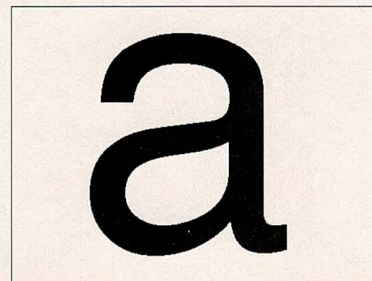
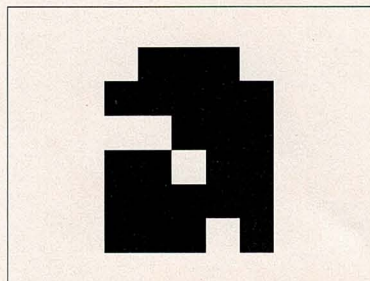
ATM makes PostScript fonts look better on-screen and can print them on a non-PostScript printer.

that it can – as long as you have Adobe Type Manager (ATM).

The magic of ATM

When PostScript was developed, Macs weren't nearly as powerful as they are today. Adobe decided the Mac would take too long to work out how to display a vector-based font on screen, so they provided the Mac with a ready-made bitmap version.

The problem is that most people need more than one size of font and bitmaps don't scale that well – they go all 'jaggy' when enlarged. Adobe got around this problem by supplying one bitmap for each of the common sizes – 6, 8, 10, 12, 14, 18 and 24 points (a point being the standard measure for type – there are 72 points to an inch). This worked fine for a while, but with the explosion of DTP, people demanded better on-screen font representation at a much greater range of sizes. So Adobe came up with ATM. This is a



Believe it or not, these two screenshots show the same font on-screen. The one on the left is a (greatly enlarged) version of a 9-point bitmap PostScript font file, while the one on the right is derived from the same font's printer file. The difference is that we switched on Adobe Type Manager for the one on the right. The font is now recognisable as Helvetica, which is installed in nearly every Mac System Folder.

Control Panel you can drop into your System Folder. It derives the on-screen image from the PostScript printer font instead of the screen bitmap. The result is sharper on-screen text, which doesn't break up into huge dots no matter how big you set it or how far you zoom in. Macs are so much faster now that there is only a minor speed penalty while the Mac does the necessary calculations on the extra detail.

PostScript vs TrueType

On the face of it, it would seem that TrueType has the upper hand in the war of the typefaces – but in reality things are very different. For starters, PostScript was so well established by the time TrueType came along that few professionals were prepared to swap, since all their typesetting equipment was set up for PostScript.

The two technologies are also very different. TrueType is a font technology but PostScript is an entire graphics system. It can be used for all kinds of illustration, fonts and pictures. Although TrueType fonts are easier to use, PostScript is so much a part of the graphics world that TrueType can never really compete.

But it does have one huge advantage over PostScript. In order to print PostScript fonts out smoothly, you have to have a printer equipped with a PostScript interpreter and lots of RAM – in fact, the processors in early PostScript printers were more powerful than the Macs of the day. This additional hardware (and Adobe's licence fee?) makes PostScript printers expensive – so much so that they're out of reach for many home users.

The alternative is to get a non-PostScript printer, but because it can't process vector-based files, your Mac now uses the screen font. So the printer faithfully reproduces each letter with the same jagged edges you see on your screen, instead of the smooth flowing curves you should get at the printer's highest resolution.

By contrast, because the Mac does all the necessary calculations while printing TrueType fonts, they will always come out perfectly no matter what type of printer you're using.

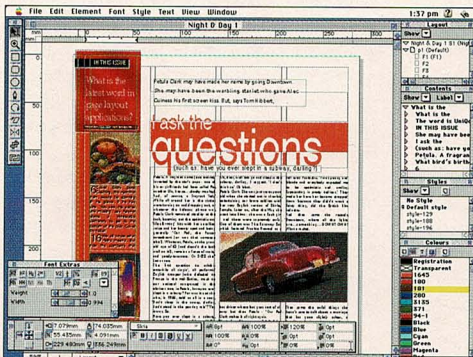
Bembo
Chicago
Courier
Futura
Geneva
Helvetica
Monaco
New York
Palatino
Times

Some of these screen fonts are PostScript and some are TrueType. Can you tell the difference? As long as ATM is installed, you won't be able to.

QuickDraw GX

There is a third type of font. The QuickDraw GX font is based on a new graphics system Apple introduced with System 7.5. It designed QuickDraw GX to get around the limitations of PostScript and TrueType in one fell swoop, by providing both a graphics and font imaging technology which will work with nearly any printer. It also adds numerous enhancements to font files by vastly increasing the character set (more foreign letters and symbols) and automating some sophisticated typographic functions, such as fractions.

QuickDraw GX has been around for a couple of years now, but the uptake on the new technology has been slow because of PostScript's popularity. The lack of any notable applications that use the technology is also a drawback, but this is about to change with two major new applications being released.



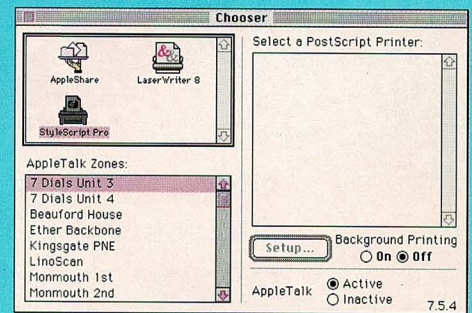
UniQorn is the first professional page layout package to fully support Apple's QuickDraw GX imaging and font technology.

GET ME AN INTERPRETER!

The two most common imaging technologies on the Mac are QuickDraw and PostScript. QuickDraw is the Mac's native bitmap imaging system; it's responsible for displaying what you see on your monitor and more often than not what comes out of your printer. All Mac printers are QuickDraw-compatible; it's simple, quick and effective for day-to-day use.

PostScript is a vector-based imaging technology developed by Adobe. Publishing pro's need a PostScript printer to accurately reproduce their documents. This takes the PostScript information output by your Mac and uses its own internal processors and memory to rasterize (process) it. This means less work for the Mac's processor, but a bigger price tag for the printer.

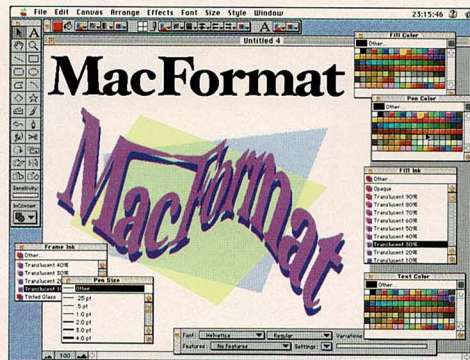
Alas, Adobe Type Manager will only work miracles for PostScript fonts; it doesn't do the same for PostScript graphics. For these, you need a PostScript printer or a PostScript software interpreter for your Mac. The latter will change the PostScript information contained in the graphics into a form that your printer will understand. This is handy for printing from programs such as QuarkXPress or Adobe Illustrator, which use



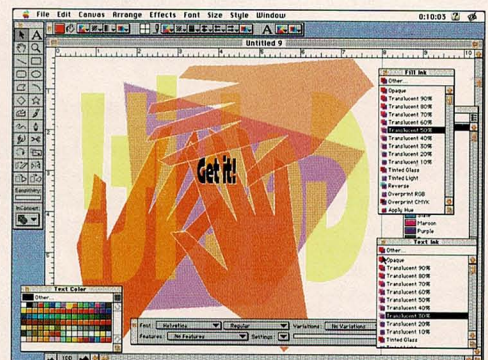
If you can't afford true PostScript, you can always fake it with StyleScript, a PostScript interpreter for your Mac.

PostScript for drawing graphics.

If you can't afford a PostScript printer but want to dabble with PostScript graphics, you can get hold of a software PostScript interpreter for your Mac. StyleScript is an interpreter that translates PostScript printing instructions into a form that non-PostScript printers can understand and use. For more details on StyleScript, contact Academy Software on 0181 656 9560.



Although QuickDraw GX has been around for over two years, programs such as LightningDraw GX are just being released.



Using QuickDraw GX, you can create graphics that look and print like PostScript on almost any non-PostScript printer.

UniQorn is a page-layout program along the lines of PageMaker and QuarkXPress, while LightningDraw GX is a drawing program. In the future you should see more programs use the technology, and have a choice of many more QuickDraw GX fonts.

Text to paper

Okay, so that's the Mac side of fonts over with; how about your printer? As we've mentioned, to be able to handle PostScript fonts, your printer has to be equipped with a PostScript interpreter.

If you try printing a document containing a PostScript font on a non-PostScript printer, what you'll get is very jagged-looking text that bears little resemblance to what it should look like. ATM helps out here, doing for your non-PostScript printer what it does for PostScript fonts on your screen. It enables your Mac to use the PostScript printer font file to generate a high-resolution bitmap your printer can use. It's not quite as good as true PostScript, but

it's better than the print-out you get without ATM installed.

Built-in fonts

Your printer can offer another advantage. All PostScript printers and most QuickDraw printers come with fonts stored permanently in their built-in ROM (Read Only Memory). Most have a dozen or more common fonts such as Times, Helvetica, and Palatino. (Some more expensive printers, such as Apple's LaserWriter 16/600PS, have SCSI ports, to which you can connect an external hard drive to store additional fonts.) Normally your Mac has to download all the fonts in a document to the printer before it prints, but not fonts that are already there. This means that printing a page using these built-in fonts is much faster than printing one that uses fonts your printer doesn't have. This won't affect the quality of your print-out, only the time it takes to produce (though the built-in fonts may be slightly different from yours). Still, it's worth remembering when you're in a hurry.

GX PROGRAMS

LightningDraw GX and UniQorn are both available right now. LightningDraw GX received a 75% rating in MacFormat 36 and costs \$299. Contact Lari Software in the US on 00 1 919 968 0701. UniQorn costs £1,060 from Principal Distribution (01706 832000). Look out for a review soon.

Continued on next page

Which printer?

Inkjet, laser, or thermal wax? What's the difference and which one is best for you? Get your screwdriver out and take a look.

There are lots of different printers out there, varying in price and output quality. So far we've covered the technicalities of printing and how your Mac and printer deal with text and graphics, but the type of printer you buy can make a huge difference.

Since the inception of the personal computer back in the early 1970s, a number of different printing technologies have been established. The three most common today are inkjet, thermal wax and laser. What's the difference between them?

Inkjet

Inkjet printers use a liquid ink stored inside a reservoir attached to the print head. A heating element around the nozzle heats up the ink inside until it vaporises, and forces a tiny drop onto the page. The print head tracks across the page, printing a single dot at a time in this way to form the image.

Because the ink is liquid, it tends to spatter and spread slightly as it hits the page, so for best results you should use a specially coated paper. Colour inkjet printers are cheap and the results are adequate for home or occasional use, but the results are not outstanding.

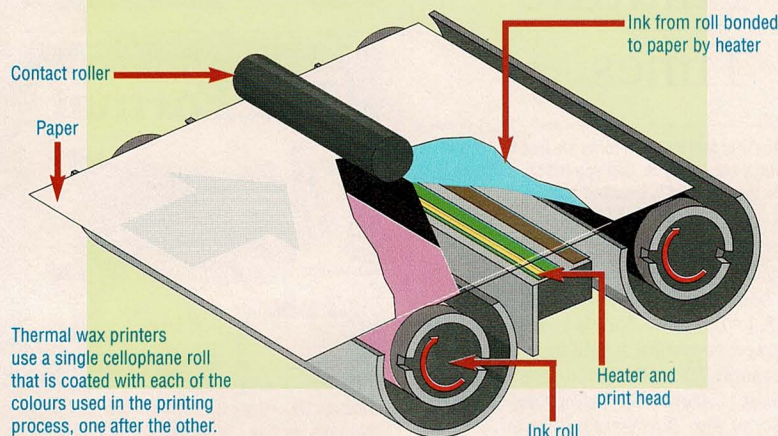
Thermal wax & dye-sub

Thermal wax printers use rolls of ink instead of toner or liquid ink. The roll is coated with a wax-based ink in alternating A4 stripes. The ink is heated up and transferred to the page a single colour at a time, enabling the

wax to cool between passes. Thermal wax printers tend to give slightly better results than inkjets, but the ink rolls can be expensive.

Dye-sublimation works in a similar way, but this time the ink turns into a gas rather than a liquid – the 'sublimation' that gives the method its name.

HOW DOES THERMAL WAX WORK?



Dye-sub is the glamour printing method; printers generally offer the best colour output you'll see for less than £2,000, but each print could set you back as much as £5 in paper and ink costs.

Because the two printing technologies are similar, most thermal wax printers can be upgraded to offer dye-sublimation. Both printing methods require a specially coated paper for the ink to adhere to.

Monochrome laser printers tend to start around £400, while a colour laser printer could cost anything from £5,000 up to £20,000. Laser printers tend to be expensive but they are generally the fastest and give you the highest image quality short of a professional imagesetter.

Which printer?

The type of printer you need to buy depends on your specific needs. If you're only going to be producing letters, a cheap black and white inkjet should suit you nicely. If you want to produce professional art, a PostScript laser printer for proofing is your best bet. If you want colour, there are a broad range of printers out there with a price tag to suit almost any pocket.

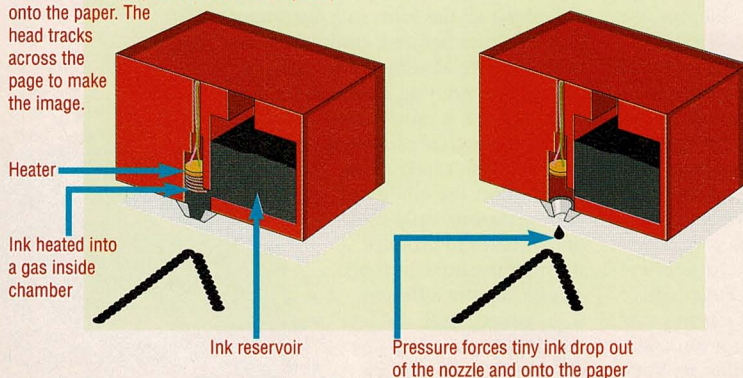
POSTSCRIPT

Adobe's graphics and font technology. PostScript is based on a language that uses mathematic vectors to describe images sent to a printer. The advantage of this is that the device will always print the image at its highest resolution. To be able to print PostScript fonts and graphics, you have to have a printer equipped with a PostScript interpreter.

Colour printers range from cheap-and-cheerful inkjets that will produce brilliant hues for less than £300, to dye-sublimation or colour laser models that can cost many thousands of pounds. It all depends on how critical colour accuracy is to you – £500 will buy you an inkjet capable of perfectly passable results. We test some of the latest affordable colour printers on page 75 this issue.

HOW DO INKJET PRINTERS WORK?

In an inkjet printer, the ink is heated in a small chamber until the pressure forces a tiny drop onto the paper. The head tracks across the page to make the image.



Laser

Laser printers are the most accurate of desktop printers and tend to produce the best results. A low-powered laser diode is used to 'draw' the image on a photo-sensitive drum. The positively charged areas of the drum pick up negatively charged particles of toner, which are then transferred to the paper and bonded on by a heater.

Imagesetters

If you produce professional graphics or need something printed commercially, you might come across an imagesetter. It's like a cross between a camera and a printer, but it doesn't actually print in colour itself. With the aid of a RIP (Raster Image Processor), it splits your document into the four 'process' colours (cyan, magenta, yellow and black) and prints each colour onto a clear film. These colour plates are used by the printer to make printing plates for commercial offset printing (as used to print MACFORMAT, for example).

The imagesetter uses grey tones to indicate the density of ink needed to reproduce the colour in that part of the image. Each plate must be per-

WHY CAN'T I PRINT OUT MY DOCUMENT?

Sometimes your Mac refuses to co-operate with the printer to get your document printed. We've had plenty of experience with dodgy printers in the MACFORMAT office, so here we present a quick troubleshooting guide to getting that document out.

Problem 1

When you try to print, your Mac tells you that it is unable to find a printer.

Solution

Make sure that the printer is switched on and it is properly connected to your Mac. Check that it appears in the Chooser, and the proper connection protocol (either AppleTalk or EtherNet, depending on your printer) is selected and switched on.

If your printer uses its own driver, make sure this is present in the Extensions folder inside the System Folder. If you're using LaserWriter 8 to drive your printer, try using

this to set the printer up. Some printers take a while to warm up after they've been switched on and won't respond to the Mac during this time. Try resetting the printer and waiting until it has warmed up.

Problem 2

Your document prints, but the letters are jagged, lacking the usual smooth edges.

Solution

Are you using a PostScript printer? If you're trying to print a document using a PostScript font, it could be that the printer part of the font is missing and your Mac is using the bitmap file instead. Check that both files are in the Fonts folder within the System Folder.

If you have a non-PostScript printer and you're using PostScript fonts with Adobe Type Manager, make sure that it's installed in your Control Panels folder inside the System folder and that it's turned on.

Problem 3

Your document prints out, but in completely the wrong font.

Solution

The document may have been created using a font that isn't in your System Folder. Ensure all fonts used in the document in the Fonts folder inside the System Folder. If your document contains an EPS (Encapsulated PostScript) file which uses a font as part of its design, is the font in your Fonts folder?

Or you might have a damaged font. Try replacing the font with a back-up copy and printing your document again. If you have too many fonts in your document, the printer may run out of memory and not print one or more of them. In this case, try turning on Unlimited Downloadable Fonts in the Page Setup Options dialogue box. This will 'flush' each font from the printer's memory once it is no longer needed.

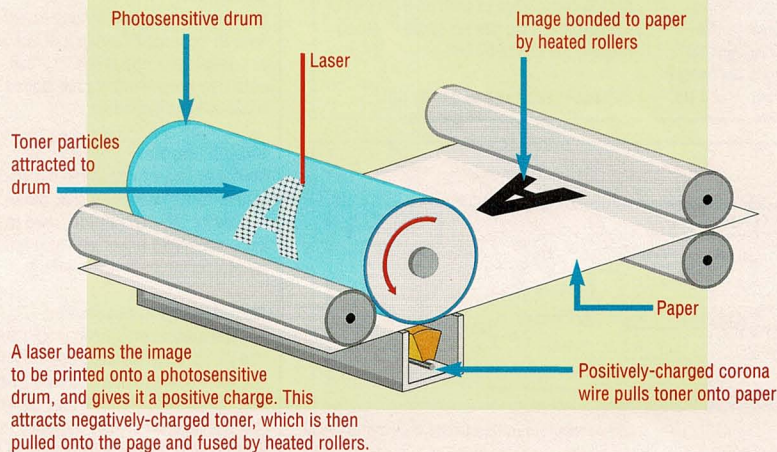
fectly aligned by the printer to reproduce the image; this is called 'registration'. Just occasionally the printer gets it wrong and the colours don't quite line up, resulting in a blurred image at worst resembling a stereogram. DTP programs (notably *QuarkXPress*) give you control over a process called 'trapping' which is designed to minimise the effects of this 'mis-registration', but we'll leave that for an in-depth look when our headaches get better...

Get more from the Chooser

When you buy a printer, you will be supplied either with a driver or a printer description file or PDF (not to be confused with the Portable Document Format devised by Adobe to display documents *without* paper). A PDF is simply a document that lists all your printer's settings and features, and tells your Mac how to communicate effectively with it.

A driver, on the other hand, is an Extension for your Mac's Chooser; it runs the printer directly. This is common on more expensive printers like lasers or dye-sub, which may have comprehensive features such as resolution enhancement and sophisticated colour matching. You can use the Chooser to select any printer con-

HOW A LASER PRINTER WORKS



A laser beams the image to be printed onto a photosensitive drum, and gives it a positive charge. This attracts negatively-charged toner, which is then pulled onto the page and fused by heated rollers.

nected to your Mac, which driver it uses and which port it's connected to.

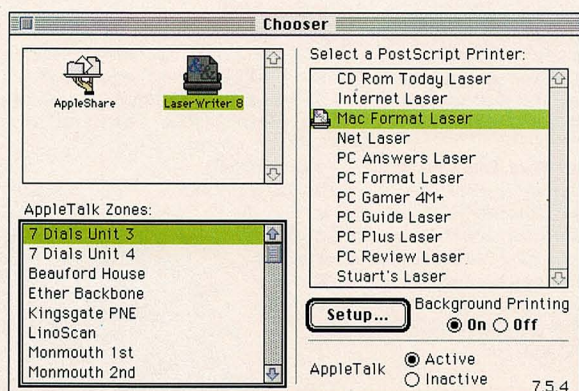
You can also turn **Background Printing** on or off. Because your Mac is many times faster at processing data than your printer, sometimes it can be tied up for some time while sending data to the printer. Turning **Background Printing** on forces your Mac to spool the document to a file on your hard disk, which is then sent in chunks to the printer – enabling you to continue your work while the

LaserWriter 8 has numerous set-up options you can use to fine-tune your printout. It also supports individual printer features, but you need the appropriate printer description file for this. Apple supplies printer description files for all of its laser printers; other companies who produce Mac printers will provide you with one of these or a custom driver.

IT'S A FAKE!

Most laser printers don't actually use a real laser – that would be too expensive. Instead, a high-powered LED (Light Emitting Diode) is used. The LED produces a bright beam of short wavelength light which, while it's not as powerful as a real laser, is strong enough to give the surface of the photosensitive drum a positive charge.

MF Continued on next page



You can use the Chooser not only to select your printer but also to set it up, pick a driver for it and select whether you want it to print in the background.

document works its way through the system.

Your Mac is supplied with drivers for each of Apple's range of printers, as well as an extra driver called LaserWriter 8. This will work with almost any laser printer – PostScript or otherwise – and is clearly the most commonly-used driver of all.

GET THE RIGHT PAPER

The quality of your final print depends not only on the type of printer you use, but also on the type of paper. For best results, inkjet and thermal wax printers have to use a specially-coated paper which the ink can adhere to without smearing. Using plain paper in an inkjet can produce messy results because the paper may be too porous for the ink – it tends to absorb ink like blotting paper. (Apple's driver software and some others can control the amount of ink used and compensate for this to some extent.) Coated inkjet paper can cost ten times as much, but it's still comparatively inexpensive and the results are far better.

Laser printers are much less fussy and most will quite happily use copier paper, most writing papers and even some types of coated and textured paper. So while an inkjet might initially cost less, after thousand of pages you might have saved money buying a monochrome laser. All manufacturers recommend a paper type for their printer, and should be able to provide you with supplies of it too.

Print options

PAGE SETUP

LaserWriter 8 Page Setup 8.3.2

Paper: **A4**

Layout: **1 Up**

Reduce or Enlarge: **100** %

Orientation: ☒ Portrait ☐ Landscape

Paper

Here you can select the size of paper you're using in your printer – US Letter, US Legal, A4 and so on. The options you get depend on what version of the System you have. With some printers, you may get an 'unknown error' if you select a wrong paper size ('US Letter' when you have A4 in the printer tray, for instance).

Layout

Here you can choose how many times you want your image repeated on the page. This is useful for printing leaflets and flyers. Options given are **1 Up** (single image printed normally), **2 Up**, and **4 Up**.

Reduce or Enlarge

Change the size of the printed image. The default is 100% so documents print out at the same size as they are on screen. This option is handy if you need to compensate for an image's resolution against your printer's (cf 'Precision Bitmap Alignment', right), or if it is closer to the edge of the page than your printer can print.

Orientation

Switch your image to print as a portrait or a landscape. This has the same effect as rotating the image by 90°.

Options – see the box on the right

PRINT

Printer: "Mac Format Laser" 8.3.2

Copies: **1** Pages: ☒ All ☐ From: To:

Paper Source: ☒ All ☐ First from: **AutoSelect**

Remaining from: **AutoSelect**

Destination: ☒ Printer ☐ File

Copies

How many copies you want to print.

Pages: All, From and To

This option enables you to choose which pages from your document you want to print. A button is provided for the whole document (**All**), or you can choose to print a consecutive pages from, say, the middle of the document by clicking on the **From** button and typing the page numbers into the **From** and **To** fields.

Paper Source

If your printer has multiple feeder options or a built-in paper tray, you can choose which one the printer will take paper from to print your document. If your printer has only one paper source, or one of its trays is set to a default, you should leave

the **AutoSelect** option under the pop-up menu on.

Destination: Printer, File

This is one of the most important and useful options the Mac gives you when printing. When it's set to **Printer**, your Mac sends the document to your printer to be printed as normal. If you choose **File** your Mac will save the document to your hard disk as a PostScript file, which can be printed on any Mac and any PostScript printer – even if they don't have the fonts or graphics used in your original document. This is particularly handy if you intend to take your document to a professional printer or bureau which may not have the fonts you are using.

Options – see the box below

PRINT OPTIONS

Print Options 8.3.2

Cover Page: ☒ None ☐ Before ☐ After Document

Print: **Color/Grayscale**

Printer Profile: **Printer's Default**

PostScript™ Errors: **No Special Reporting**

FinePrint(TM): **Printer's Default**

PhotoGrade(TM): **Printer's Default**

Tray Switch: **Printer's Default**

PAGE SETUP OPTIONS

LaserWriter 8 Options 8.3.2

Visual Effects:

- ☐ Flip Horizontal
- ☐ Flip Vertical
- ☐ Invert Image

Printer Options:

- ☒ Substitute Fonts
- ☒ Smooth Text
- ☒ Smooth Graphics
- ☐ Precision Bitmap Alignment
- ☐ Larger Print Area (Fewer Downloadable Fonts)
- ☐ Unlimited Downloadable Fonts in a Document

Substitute Fonts

This option is checked by default and is for PostScript printers. If you try printing a PostScript font and your Mac either can't find the printer font or the font itself is damaged, the printer will substitute one of its built in fonts, such as Courier or Helvetica, instead of printing a jaggy bitmap version of the problem font.

Smooth Text

Checked by default. If for any reason you need to print out a bitmap font like Venice or London, this option will improve output by smoothing out the jagged edges around the letters.

Smooth Graphics

Similar to text smoothing, but it works with bitmap graphics such as those created in *ClarisWorks*. You need to be using LaserWriter 8 or an Apple printer for this option to have any effect.

Precision bitmap alignment

The thing about on-screen graphics is that 72 dpi don't divide evenly into 300 dpi, the resolution of a standard printer. This option reduces the image by 4% so that one pixel on screen is exactly four dots on your printer. This is only an issue when you are printing bitmap graphics. To be honest, for most day-to-day purposes it makes little difference. When you're doing an important print job that uses bitmap graphics though, you should turn this option on. For printers with different resolutions, you can achieve the same effect by altering the size percentage in the **Reduce or Enlarge** box.

Cover Page: None, Before, After

When switched on, this option will print out a cover page for your document with the time, date, application you printed from, the document name and which printer it was printed on. The **Before** option will print the cover page before your document, while the **After** option – not surprisingly – delivers the page after your document. By default this option is turned off.

Print: Black and White, Colour/Greyscale

Use this pop-up menu to choose how you want to print the document. Picking the **Black and White** option means you'll won't get any half-tone details. You should use this option when you are printing a text-only page. You should always use the **Colour/Greyscale** option when you have graphics in your document.

PostScript Errors

This pop-up menu enables you to choose how you want to be notified of any errors

Larger Print Area

This is a handy option for programs like *SimpleText*, which don't enable you to change the margins on the page. Most printers leave a half-inch margin round the edges of the page, cutting off anything that strays into this area. Turning on **Larger Print Area** reduces this margin to about quarter of an inch, giving you more printable page space.

Unlimited Downloadable Fonts

This is a useful option if you're trying to print a document containing lots of different fonts, or large graphics to a printer with limited memory. This forces the printer to dump each font from its memory as soon as it's finished with it. This leaves more RAM for the rest of the document. With this option turned on, printing takes longer because the printer has to shuffle stuff around in its memory.

Flip Horizontal and Flip Vertical

These options flip the image upside-down and back-to-front respectively. We can't see much point in the the **Flip Vertical** option since you could just as easily set your document up this way, or simply turn the paper in the printer round if you're printing onto a sheet with a letterhead. Still, the option is there and you might find some obscure use for it yourself one day.

Invert image

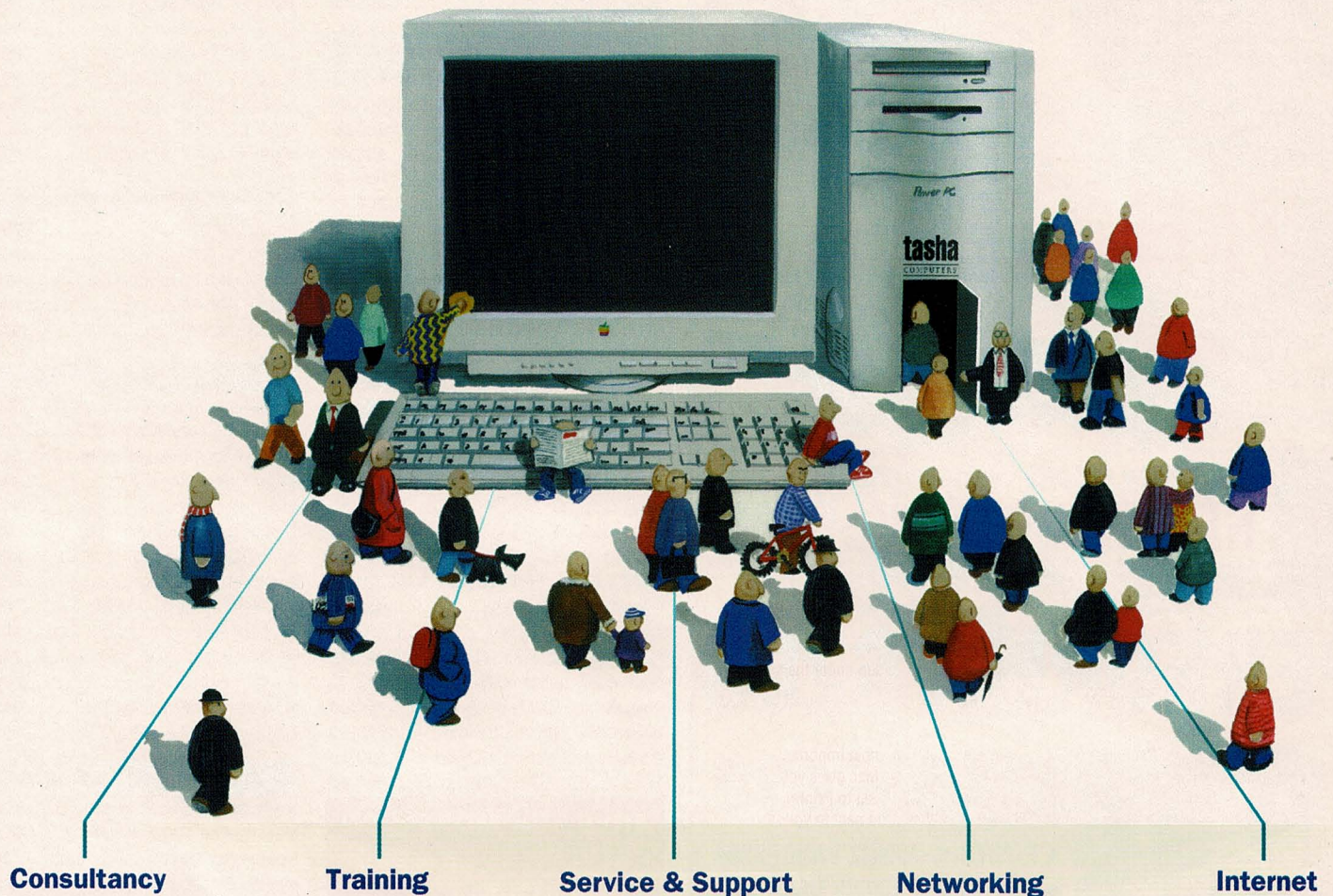
This is another handy option which reverses out the image you are printing – meaning that black areas become white and vice versa.

that occur while printing. You have a choice between **No Special Reporting**, **Summarize on Screen** or **Print Detailed Report**.

Other options

Depending on which make and model of printer you have and the features that come with it, you may have additional options in the **Print** dialogue box that you can use to fine-tune your print-out. Features such as resolution enhancement and colour/greyscale calibration are quite common on more expensive laser printers.

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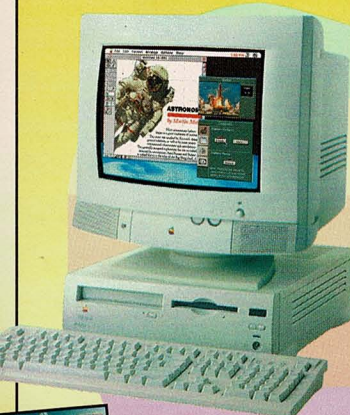
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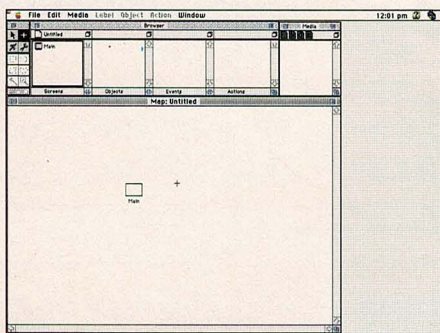
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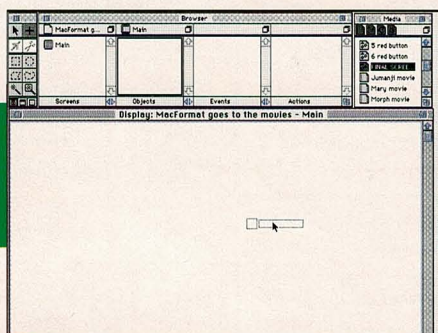
DIY video controller

Take a copy of *Apple Media Tool*, a pinch of Colin Dalziel, this issue's tutorial files, stir well... Hey presto! An interactive QuickTime video controller.

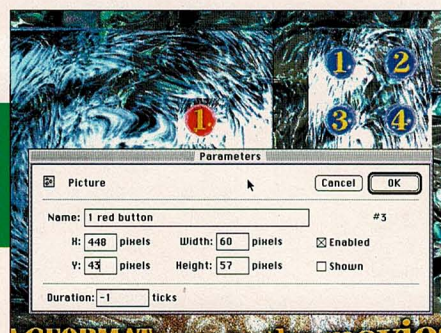
You can see a finished version of the video controller on the Cover CD



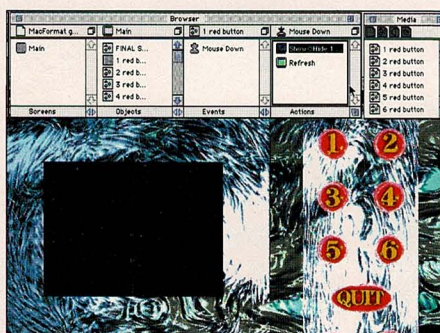
1 After opening *Apple Media Tool* select the **Creation** tool from the palette. Click once in the **Map** window to create your main screen, and call it 'Main'. Double click on the **Main** icon to open its display window.



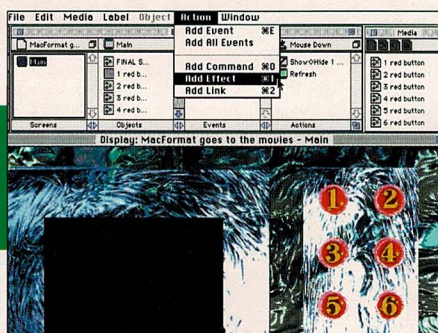
2 From the **Media** menu select **Add** and import all the files from the **Media** folder on the Cover CD-ROM from this issue of *MACFORMAT*. You will find this folder in the **AMT Tutorial** folder, inside the **Tutorials** folder. Drag the **Final screen** icon from the **Media** window into the **Display** window – later, this will enable you to make the buttons highlight when you click on them.



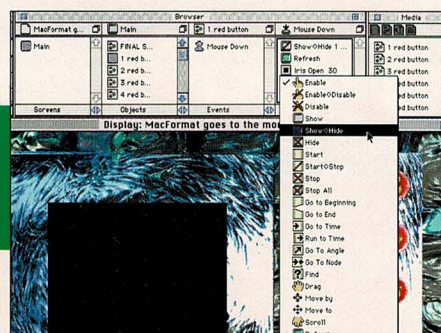
3 To position the buttons correctly on top of the blue buttons, drag them from the **Media** window into the **Display** window. You can position them by eye, but it's easier to use co-ordinates. Set the co-ordinates for the **1 red button** by double clicking on it, then in the **Parameters** dialogue box that's displayed, type 448 in the X box and 43 in the Y box.



7 With **Mouse Down** highlighted, add a **Show/Hide** from the **Actions** pull-down menu. This will cause the red button to appear when clicked once and disappear if clicked again. You are going to add a wipe when the video opens, but to make sure the wipe is not applied to the button, add a **Refresh** command in the **Actions** window.



8 The wipe is added by selecting **Add Effect** from the **Action** menu. The default is **No Effect**. Click and hold on the **No Effect** icon and select **Iris Open** from the pull down menu that appears. Next, select the movie you want to play when the button is clicked.



9 Add a **Show/Hide** option in the **Actions** window. The default is **Show/Hide 'Itself'**. In this case, the action would currently affect the **1 red button**, but it's the movie and not the button you want the action to apply to, so you must change the default.

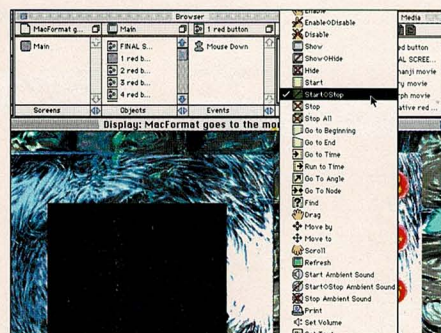
OBJECTS, EVENTS AND ACTIONS

Apple Media Tool uses three key components in all the projects you develop with it: Objects, Events and Actions. Any buttons, backgrounds, movies and sounds in your projects are objects. In fact, any media you add to your project is an object. Events are used to trigger action and interaction. For example, the event of clicking the mouse button on an object may start a QuickTime movie. All events must be applied to objects such as buttons. Any one object may, however, have more than one event – if the mouse moves over an object, one specific event may take place, but then again, clicking on the object may cause something different to happen. Actions are the result of events, so the playing of a movie when a button is clicked would be the action. Actions must be the

result of events, but again, more than one action may take place after just a single event. This all might sound more complex than the European agricultural policy, but if you work carefully through this tutorial you will be able to see how you can fit all of these components together to produce your own interactive project.

When you're working with the **Objects**, **Events** and **Actions** windows, you can make it much easier to read the file names by enlarging the mini windows. Do this by dragging the expandable corner outward.

One final point. When you use **Set Sound Action**, you change the sound setting of your Mac rather than just the project. So any volume changes are going to remain even after you quit *Apple Media Tool*.



13 The next action is to **Start/Stop** the movie, so one click starts it and a second click stops it. Simply add a **Start/Stop** action and apply it to **Jumanji** as you did before. The final action to add to this section is another **Refresh** which redraws the screen.

On the Cover CD of MACFORMAT 36 we gave you the very latest in multimedia creation software, *Apple Media Tool 2.0*. As if that wasn't enough, we also gave you a tutorial showing how to create your own multimedia presentations.

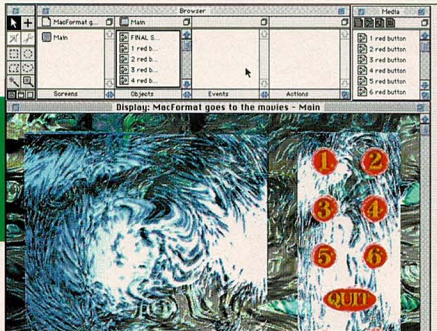
This issue we take a look at different ways to create buttons for your users to interact with your multimedia

presentations. You can use this style of button in any multimedia production to help the user navigate between screens. We also look at a way of highlighting an area when the mouse moves over it – showing the user which area is active and clickable.

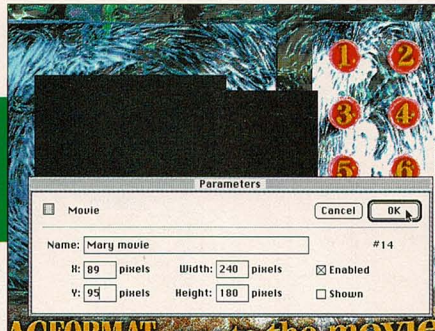
All the buttons and text used in the examples on these pages were created using *Color It! 2.3.5*, which was yours on the MACFORMAT 31 Cover CD. **MF**

HOW TO CREATE EVENTS AND ACTIONS

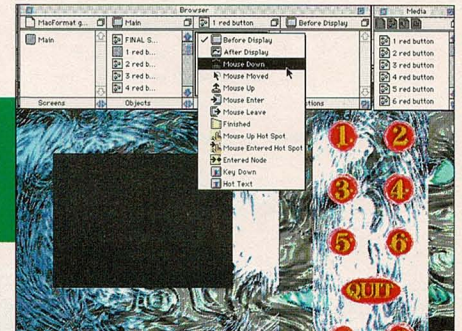
To add events and actions to your project, double-click in the appropriate Events or Actions window at the top of the screen, then click and hold on the new icon which appears. A range of options that trigger these events or actions will then pop up on a menu for you to choose from. Scroll down the list and release the mouse button when you reach the option you require.



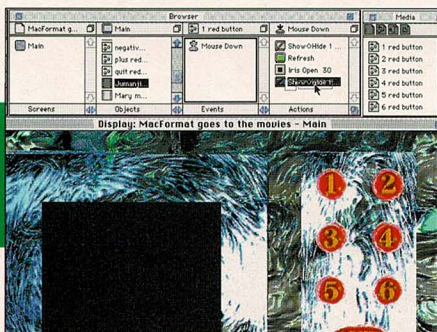
4 For each button, de-select the **Show** check box so the highlights do not become visible until required. The co-ordinates for the other buttons are: Button 2 = X519, Y43; Button 3 = X449, Y112; Button 4 = X525, Y112; Button 5 = X445, Y184; Button 6 = X526, Y184; Plus = X523, Y315; Negative = X448, Y318; Quit = X462, Y248.



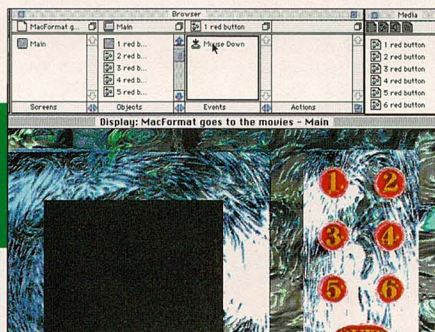
5 Position the video clips on the screen in the same way as the buttons. All the clips need to be on the same spot, at the position X89, Y95. Again, make sure the **Show** check box is de-selected when you enter the co-ordinates.



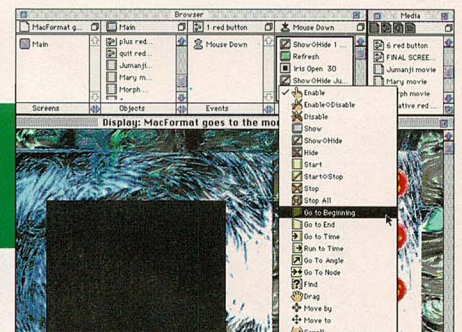
6 Now everything is in place, you can start to introduce the interaction. With the **1 red button** selected in the **Objects** window, add a **Mouse Down** event in the **Events** window. If you are unsure of how to do this, see the 'How to create Events and Actions' box above for details.



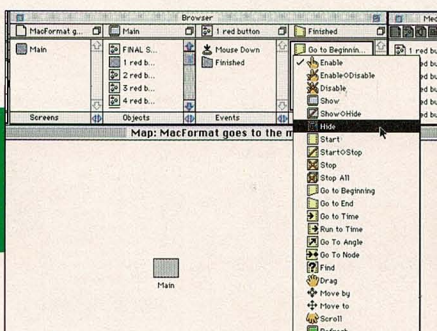
10 Hold down and drag the **Jumanji** icon from the **Objects** window on to the **Show/Hide** icon in the **Actions** window. It is important you drag the icon as soon as you click on it, or you will select it rather than move it. The **Show/Hide** icon should say **Jumanji** rather than 'itself' if you have done this correctly.



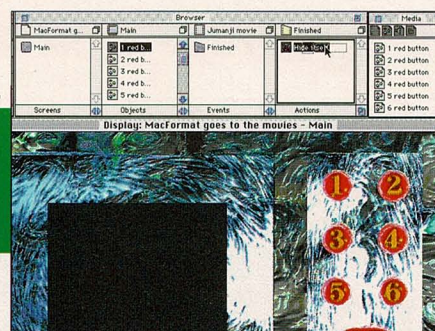
11 If you do make the mistake of holding on to the **Jumanji** icon too long, you will select the icon and all your work will seem to disappear. All you have to do is click on the **1 red button** icon in the **Object** window and then select **Mouse Down** in the **Events** window to get back to where you were before.



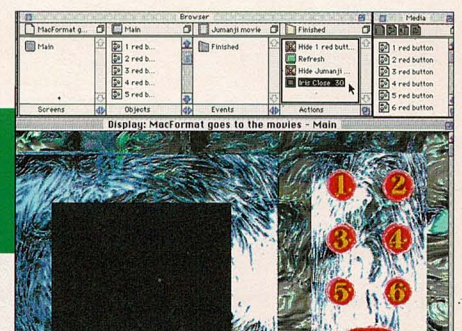
12 There are three more options you need to add in the **Actions** window. The first is rewinding the video. Add a **Go To The Beginning** action – you must apply this to the **Jumanji** movie rather than 'itself', so repeat the operation from Step 10, dragging the **Jumanji** icon on to the icon in the **Actions** window.



14 To make the video play from the beginning each time, you need to add one more event with two actions. Add a **Finished** option in the **Events** window and with the **Finished** option selected, add **Go To The Beginning** and **Hide** in the **Actions** window. Drag the **Jumanji** icon onto the **Hide** icon, so the action applies to the movie.



15 The last stage is to tidy up the screen when the movie has finished. With the **Jumanji** icon selected in the **Object** menu, add a **Finished** event, then add the following actions to the movie: first add a **Hide** action. This is for the **1 red button**, so drag the **1 red button** icon from the **Objects** window on to the **Hide** icon.

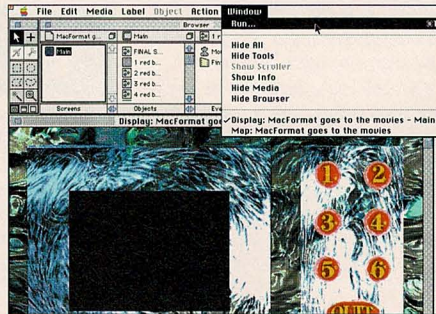


16 Add a **Refresh** action to redraw the screen. Then add another **Hide** action, this time dragging the **Jumanji** Object icon on to the **Hide** icon. The final action is an **Iris Close** wipe, which you add by selecting **Add Effect** from the **Action** menu.

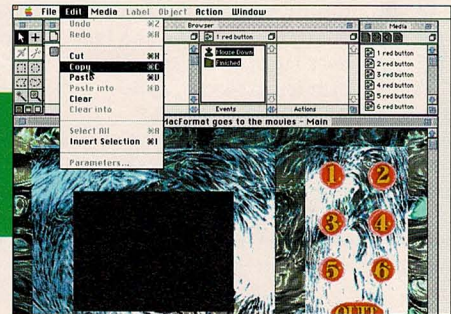
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RUNTIME SET UP

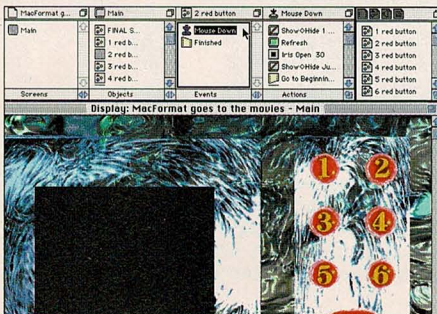
You can set the way your projects look by selecting **Runtime Set Up** from the **File** menu. This dialogue box enables you to define screen size, type of cursor and the number of colours. For setting colours, **AMT** will try to run with the option in the first box. If the Mac does not support that number of colours, **AMT** checks the second box and finally the third. If it can't find a value it can use, the project won't run. To make sure your project will run on any colour Mac, you should ensure one of the options is set to 256 colours.



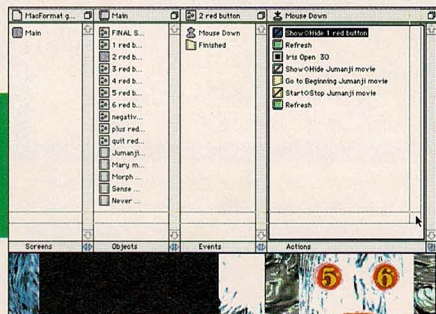
17 Now is a good time to test the work you've already done, to make sure everything runs smoothly. Select **Run** from the **Window** menu and test out the **1 red button**. If all runs correctly, you can now connect the other buttons to the other movies. Hit the [esc] key when you want to return to the **AMT** windows.



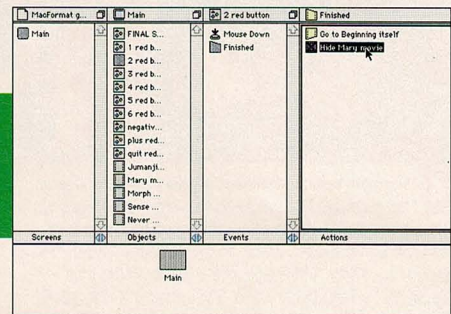
18 Rather than repeating all your earlier work, you can simply **Copy** and **Paste** your previous actions on to the other buttons. With the **1 red button** highlighted in the **Objects** window, select all the items in the **Events** window by holding down shift and clicking on them, then select **Copy** from the **Edit** menu.



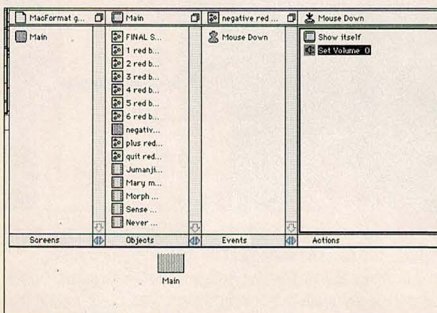
19 Select **2 red button** and click the mouse once in the **Events** window. Select **Paste** from the **Edit** menu and all the copied events will appear in the **Events** window. If you click on the **Mouse Down** event, you will notice all the attached actions have also been copied.



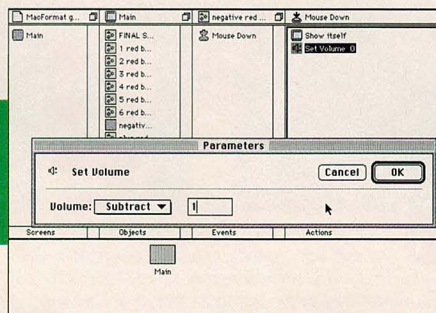
20 In the same way as you did for **Jumanji** in Step 10, drag the **Mary** movie icon onto each of the action icons which have **Jumanji** in their titles. You will also have to change the actions attached to the **Finished** object so they are applied to the **Mary** movie rather than **Jumanji**. Do this using the same drag and drop operation wherever you need to replace **Jumanji**.



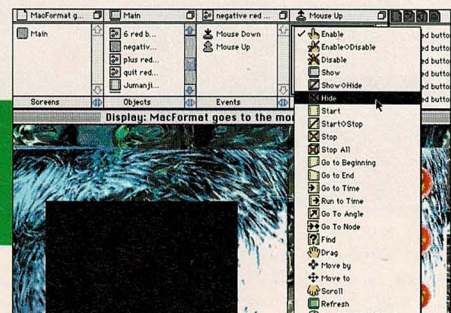
21 Don't forget to change the events attached to the movies so they all close by themselves when they finish. To prepare the rest of the movies, you simply have to follow the procedure from Steps 18 to 20 for each of the other buttons.



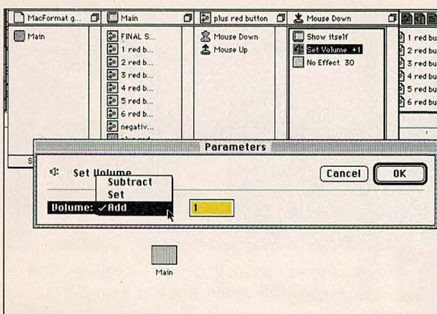
22 Next you want to be able to set the volume of your player. With the **negative red button** icon selected in the **Objects** window, add a **Mouse Down** option in the **Events** window, then add a **Show** action to enable you to see the red button when it's clicked on. Add a **Set Volume** option in the **Actions** window.



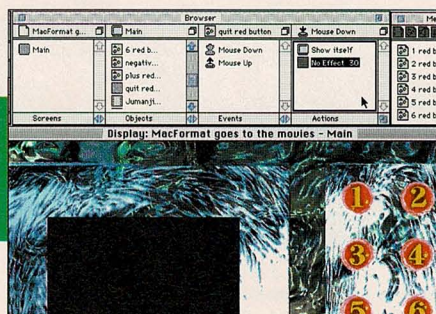
23 Double-click on the **Set Volume** icon to open the **Parameters** dialogue box. This window enables you to set the volume and add to or subtract from the current volume. Select **Subtract** and enter **1** in the **Option** box to decrease the volume by one unit each time the button is clicked.



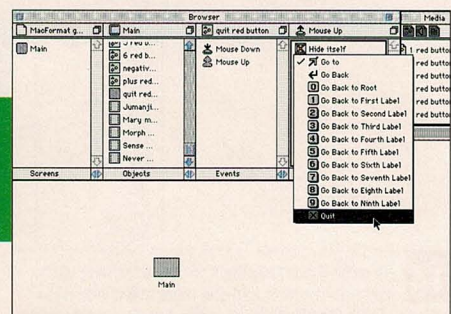
24 From the **Action** menu choose **Add Effect** to stop any of the other wipes in the movie affecting the button. In the **Events** window add a **Mouse Up** option, then add a **Hide** option in the **Actions** window. This will hide the red button when you release the mouse.



25 Again, you can **Copy** and **Paste** the commands, this time from the **Negative Button** events to the **Plus Button** events. To change the **Plus Button** **Set Volume** option to positive, select the **Mouse Down** event and double click on the **Set Volume** icon, then change **Subtract** to **Add** in the **Parameters** window.



26 The last stage is to make the **Quit** button active. As you are using the same show and hide commands, **Copy** the events from the **Negative** button and **Paste** them to the **Quit** button. With the **Mouse Down** option selected, delete the **Set Volume** icon from the **Actions** window.



27 Select the **Mouse Up** event and choose the **Add Link** option from the **Action** menu. Click and hold on the default link which appears, then select **Quit**. You now have a complete interactive multimedia video system. Select **Run** from the **Window** menu, grab your popcorn and enjoy the show...

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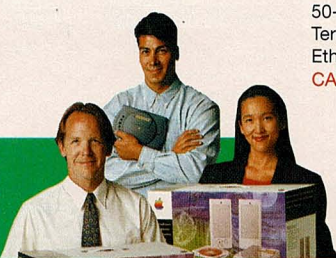
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DISTORTION IN COLOR IT!



1 Rotate. We're going to transfer some of the woman's features to the front of the Mini, using the simple standard distortion tools. First we'll change the form of one eye to use as the car's headlights.

Select the area immediately surrounding the eye with any selection tool (we've used an ellipse). Holding down your **[option]** key, drag the selection to make a copy of the selection, then use **Rotate Free** from the **Image** menu to rotate the eye until it's horizontal.



2 Stretch. Next the eye must be made tall and thin to match the headlight on the driver's side of the car. You may need to try this several times to get the shape and size right. It will help if you **Open** the Mini image and set it up alongside as shown here. Once the size is correct, hold **[option]** and drag away another copy, then resize it to match the other headlight.



3 Stamp. Strictly speaking it's not a distortion tool, but **Stamp** is by far the best way to transfer parts from one image to the other. It enables you to choose exactly where the bits go, how soft their edges are, and how transparent the image is. Hold down **[option]** and click on the source, perhaps the eye's **highlight**, then **start painting** carefully over the Mini's headlight. Yes, you can paint from one file to the other!

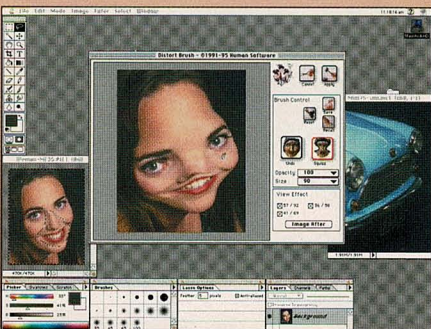
Distorting the truth

You can use your Mac to make an image from real life into something more surreal. Brian Larkman shows you how it's done in top graphics programs *Color It!* and *Photoshop*.



It may not be too complimentary to the original, but this Mini's a reasonable example of how distortion can transform an image. The crisp detailed movement of the facial features was produced using Human Software's *Squizz* plug-in. Something similar could be produced using *Color It!*'s **Smudge** brush, but the effect would be more blurry. The overall perspective was produced with a standard **Shear** tool.

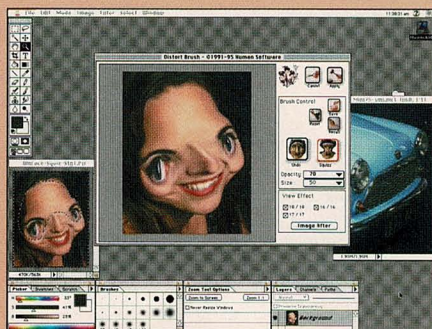
DISTORTION IN PHOTOSHOP AND SQUIZZ



1 Move Eyes. The **Smear** and **Distort** tools in *Color It!* could make the whole face fit the car but the definition would blur grossly, hence the approach we've used in our *Color It!* tutorial. Human Software's *Squizz* plug-in for *Adobe Photoshop* is far superior. Here the eyes have been **Brush Warped** down and out using opacity set at 100% and a 90 brush size. The nose and mouth of the original (lower left) are not selected, so remain in their original positions.



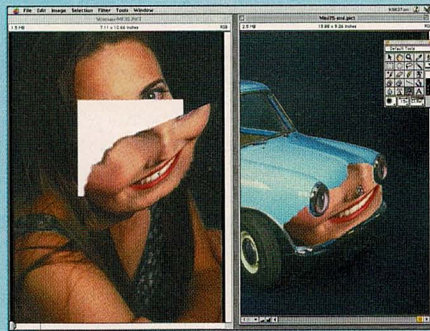
2 Resize Eyes. Now we enlarge the eyes to match the car headlights. The nose and mouth are protected from change because they're not in the selected area. Again, the size match is helped greatly if you open the Mini image and set it up alongside as shown here. The opacity is set to 70% and the size to 50. Work in small careful steps, rather than bold ones, to retain control of the warping.



3 Bend Nose. Once the eye warp is applied, **Invert** the selection: this will highlight the unselected area and vice versa. **Copy** the nose and mouth to the clipboard for future use. Now we must point her nose more to the right. Select the eyes and forehead and **Invert** to protect them. Choose 70% and a 50 size brush and push the end of the nose. The rest will follow, though you may need to use a smaller brush to make minor corrections.



4 Skew. The key to to all good montage is matching the perspective of originals together. Here the woman's face is quite close to what we need, but the viewpoint is a little out. Select a fairly large rectangular area around the mouth and nose, leaving room for distortion. After experimenting with distortion and perspective effects you'll find that **Skew** is required – about 30 degrees to the right, then 30 degrees down as shown here.



5 Smear. Before blending the face into the car, the smooth skin around the woman's cheeks and chin need to be smeared over a wider area. Try to copy the contours of the car and the degree of shading if you can. This takes lots of practice, so you will probably have to use **Revert** and start again several times. Once you've got it, you can use **Stamp** to transfer it across, as in step 3.



6 Colourise. Once all the features are transferred to the car, it is time to start blending the two together. Once again it takes some practice; remember the **Smudge** tool is best set to about 60%. It will smear from the starting colour to the ending colour quite quickly, so working backwards and forwards across a colour boundary can make a smooth gradient quite soon. This will be enhanced if you **Colourise** with the brush mode using the strongest pink (copied to the palette with the Dropper Tool.)

One of the most useful tricks in the image processing cabinet is distortion – pushing an image around, bending and squidding it on the screen as if it were a form of putty or wet paint.

Because distorting an image is what computer paint programs do best, a whole range of graphic tools designed specifically for this purpose has grown up over the last decade. Almost every paint program now has at least a simple set of shape transformation tools – scale, skew, perspective and distort, for example – plus some sort of basic finger brush or smudge brush to move pixels around.

Most distortion effects can be produced using these tools, although

creating anything sophisticated usually requires some skill and a lot of trial and error. *Color It!* – the basis of most of our recent image processing tutorials since we provided version 2.3.5 on MACFORMAT 31's Cover Disk – has only the most common shaping tools plus a reasonable finger brush. In

the tutorials here, we show you the best techniques for getting good distortion effects from these tools.

Distortion goes a lot further than these basic functions though.

Some effects are more controllable and can be created much more quickly with dedicated distortion tools such as **Wave**, **Twirl**, **Pinch**, **Ripple** and **Spherise**. Some tutorials and illustrations of this type of effect have been produced here using *Adobe*

Almost every paint program now has at least a simple set of shape transformation tools.

WARPING VS. DISTORTION



There are two basic methods you can use to distort an image – warping with a shape or grid tool like **Shear** (shown on the left of the picture) or smearing with a brush tool using **Smudge** (right). The two halves of this image show these processes at work in *Color It!*

Photoshop 3.0, which has a huge range of sophisticated effects. However, even

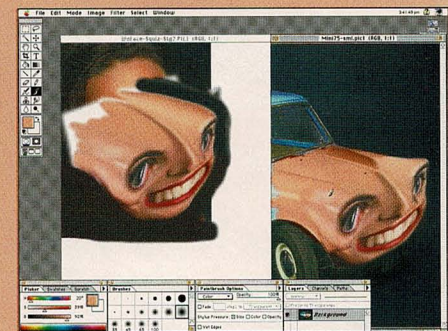
Continued on next page



4 Stretch Mouth. The mouth should resemble the radiator grill, so it will need some work. Open a **New** page and **Paste** the nose and mouth you made a copy of. Select the lower mouth, hold down **[option]** and drag to make the teeth longer and lip lower. **Copy** just the mouth and **Paste** onto the original. Protect the eyes, nose and forehead as shown by highlighting it then using **Invert**. Open **Squizz** and use a size 60 brush at 70% opacity to broaden the smile.



5 Skew. The new look so far is set at a different angle to the Mini. Tools like **Perspective** or **Distort** could be used to correct this, but **Skew** proves to be the best here. Use the Lasso, hold down **[option]** and select a broad area of the face. Use **Skew** to shift it about 30 degrees right and a little down. You will have to judge the perspective to suit your work. You may need to scale the selection down a little as well before it will fit.



6 Colourise. The final stage is almost the same as using *Color It!* but requires more care and lots more blending on the car. Use the **Smudge** tool to smooth the forehead well back into the contour of the bonnet, and use **Dodge** and **Burn** to lighten the highlights above the eyebrows. Use **Stamp** to copy the face across, then **Smudge** to blend the images together. Careful colourising using the woman's colour tones will provide the finishing touch.

GRAPHICS MAGIC

'Resolution independent' graphics programs don't actually alter an image file itself when you work on it, only when you finish and 'apply' your changes. This means that both *xRes* and *Live Picture* enable you to manipulate much larger files than *Photoshop* can manage. Find out more about them in our head-to-head test starting on page 88.

Photoshop has its limitations. For some reason one simple class of distortion – **Bend** – has never found its way into the toolbox. Electronic Arts' *Studio* series – the now rather old-fashioned *Studio/1*, */8*, and */32* – have a very powerful and unique set of **Bend** functions that would be extremely useful as standard *Photoshop* tools or as plug-ins – provided they were updated to smooth the distortions when finished.

The most spectacular form of distortion – warping – has also remained absent from the standard toolbox. However, Human Software's *Squizz* plug-in decidedly fills this gap with its very powerful brush and grid-warping tools. As the tutorial shows, *Squizz* enables you to smear and warp an image all over the screen without losing sharpness or definition. Only dedicated morphing and warping programs like *Elastic Reality* or 'resolution independent' image editing systems, such as *xRes* or *Live Picture*, can exceed this sort of performance.

You cannot expect a humble pixel dauber to understand the science of it, but the basic principle of *Squizz* too is resolution independence.

Squizz converts the screen area you select into a low resolution preview that displays the warps and distortions you apply in near-real time (though of

course it'll be slower if you work with a very large file). Each application of the brush or warp grid is recorded so that when the warp is applied to the main image, it is redrawn with much greater accuracy at the actual image's higher resolution.

Macromedia's *xRes* works in a similar but more subtle way, updating the main image file when the work is saved. *Live Picture* also updates the main image file at a later time, but seems to have an even more sophisticated way of displaying its preview images. They really are without resolution: however far you zoom in, you never see pixels!

MF

WHERE CAN YOU GET THEM?

■ *Color-It 2.3.5* was free with MACFORMAT 31; or you can buy version 3.0.2 for just £44.95 through the MACFORMAT mail order service. See page 116 for more details.

■ *Adobe Photoshop v3.0.5* costs £851.88. For more details contact Principal on 01706 831831.

■ *Squizz 1.0* costs £151.58. For more details contact CGS Computerbild on 0181 679 7307.

WARPING ON THE MOVE

Once you've mastered creating dramatic images of warping effects, the next step is animating your ideas.

Morph is an ideal introduction to the process of morphing, where you can take two static images and create a video sequence of one merging into the next. The sequence will of course reveal all sorts of bizarre distortions, as one shape flows and changes to become the other.

Morph gives you control over the different ways the morphing can take place. As you place a dot somewhere

on your start image, a corresponding dot appears on your end image. The first dot will then move to the position of the second during the sequence, while surrounding areas will fade from one image to the next throughout the set of frames. Your Mac then works out how the image in each frame of animation will look as it progresses. It's easy to make distortion video clips in *Morph* using these simple principles.

■ *Morph* costs £117.75. Contact Soft-line on 0181 401 1234.

DISTORTION EFFECTS WITH YOUR MAC

Both *Color It!* and *Photoshop* offer what can be a bewildering selection of special effect and distortion tools. Here's a quick visual reference guide to the effects you can create with each of the main warping commands in the two programs.



Distort – *Color It!*



Perspective – *Color It!*



Scale – *Color It!*



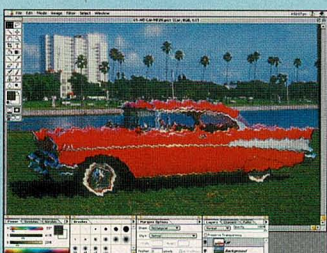
Shear – *Color It!*



Smudge – *Color It!*



Pinch – *Photoshop*



Ripple – *Photoshop*



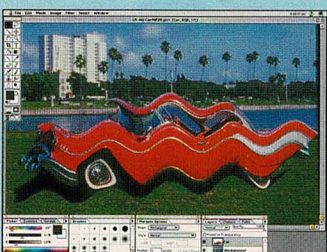
Shear – *Photoshop*



Spherise – *Photoshop*



Twirl – *Photoshop*



Wave – *Photoshop*



Zig-zag – *Photoshop*

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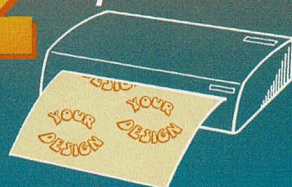
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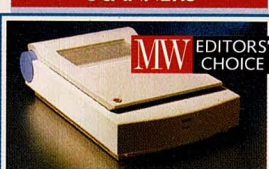
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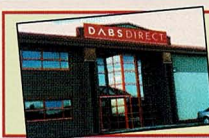
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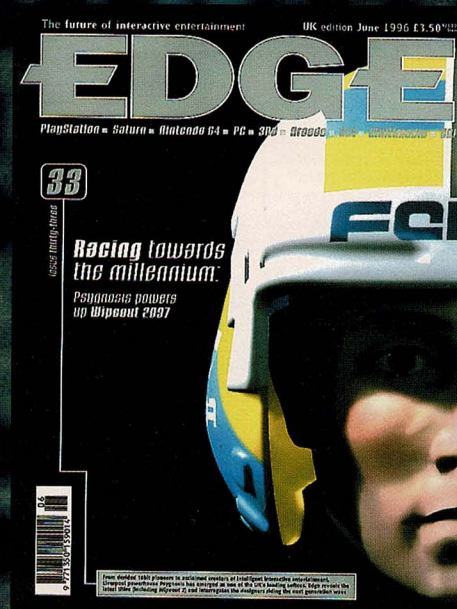
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EDGE

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Welcome once again to MacAnswers, the section of MACFORMAT devoted to solving your Mac troubles. This issue we've had our own share of Mac problems in the office, what with Alex's network connection periodically vanishing, Mark the Art Editor's PowerMac 7500/100 slowing down to a snail's pace, and the Man with Two Brains taking over the office (don't even ask – you don't want to know!).

We suspect Derek's foul paw in all this, but the dino himself waved his little mitts and shrugged his shoulders in innocence. Could it be that we have a saboteur in our midst, or was it all just bad karma?

If you've got a problem, fill in the form on page 66 and send it in, or e-mail us at macformat@futurenet.co.uk with MacAnswers in the subject title. Sorry, but we can't reply personally or answer technical questions over the phone, because we've got a pile of *X Files* videos and popcorn in and we're going to do some extensive research into the effects of paranormal activity on the humble Mac. The truth is in there somewhere...

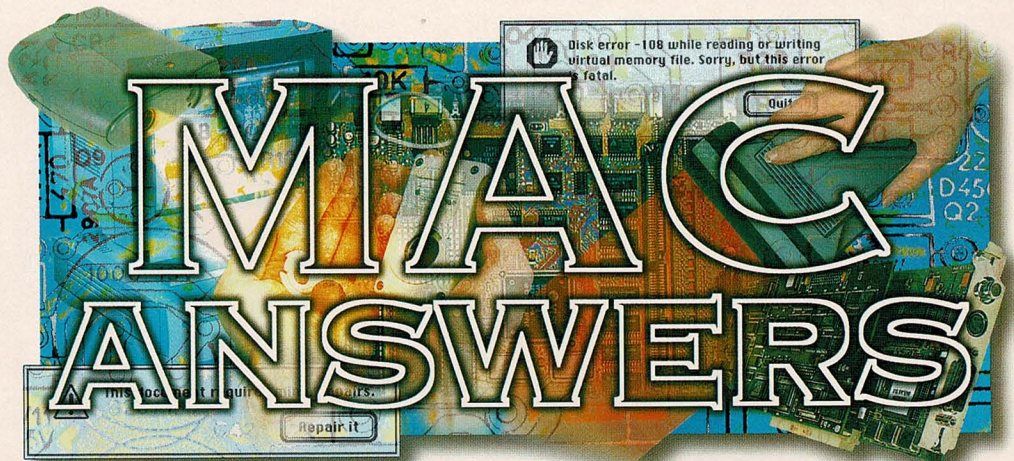
Digital therapy RECORDING SOUND

Q We are a music therapy institute and would like to improve our documentation for teaching and case reports. All the therapists working here record their work onto audio tape, and mostly onto DAT (Digital Audio Tape). We would like to include sound samples from the therapy in documents as case studies. Can you please give us some idea about how we can go about doing this in a simple way that would reach professional standards of sound quality? I would like to make a CD-ROM about our work here that would include such sound episodes linked in to the various documents.

I have a PowerMac 8100/80AV with 64Mb of RAM and 4Gb of hard disk space linked to a Phillips CD2000 CD-writer. What I need to know is which software (shareware or commercial) is suitable for recording to disk, and what software is best for integrating text and sound files. We are already planning to get Adobe Acrobat for distributing documents.

Prof David Aldridge
Witten, Germany

A There are several software options for recording sound using your Mac. To be honest, it's not really the software that counts, it's what hardware you've got. Your PowerMac 8100/80AV will record 16-bit sound at a sample rate of up to 44KHz – that's audio CD quality. Getting the sound into your Mac isn't a problem. If it's short samples you can get away with just using the Record facility in the Sound Control Panel; for longer samples and editing you'll need some software. Macromedia's *SoundEdit 16* 2.0 (reviewed in MACFORMAT 36) is a

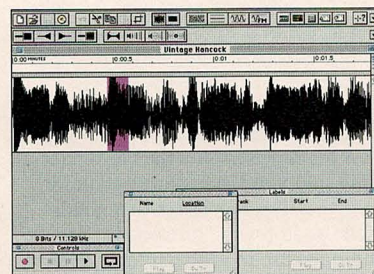


Oh dear, poorly Mac? Can Lindsay Bruce do anything other than pat its drive and take its clock speed? Stand well clear – the MACFORMAT expert is on the case!

professional sound editing package, but you are unlikely to need anything this powerful for voice samples. On the shareware front, *SoundEffects* (MACFORMAT 32 Cover CD) is an excellent sound editing program and costs just \$15 (£10). While obviously not as comprehensive as *SoundEdit 16*, *SoundEffects* has all the features that you'll need for editing voice samples and plenty more besides, including a host of interesting sound effects.

One point you should consider is the intended length of each sample. With 64Mb of RAM you may think you have plenty of memory, but recording digitised sound will chew through this in no time. System and application requirements will use around 8Mb, which leaves you 56Mb of free RAM to record sound onto before it's written to disk. CD-quality stereo sound takes up around 150K per second, so 56Mb of RAM will only give you about six-and-a-half minutes of unbroken recorded sound. In practice, however, for voice sampling you can use a much lower sampling rate and it needn't be in stereo. You should be able to squeeze around 20 minutes of reasonable quality, unbroken voice recording into the amount of RAM you have available.

As far as integrating text and sound



Macromedia's *SoundEdit 16* is a professional sound editing package with more bells and whistles than you could ring or blow in a month of Sundays. But if you only intend to use it to record speech, it might be just a tad too powerful for your needs. See 'Digital therapy'.

goes, there are plenty of options to try. The one you pick depends on whether you want your files to work on PCs as well as Macs. Adobe's PDF (Portable Document Format) is now probably the most widely-accepted form of distributing sophisticated information across different platforms, but unfortunately it doesn't support sound. What you need is a multimedia authoring tool, such as *Macromedia Director* or *Apple Media Tool* (given away on the Cover CD of MACFORMAT 36). These will enable you to integrate not only text and sound, but also colour pictures and graphics, animation and QuickTime movies.

You want to do what?!

RESEDI

Q On my old LCII I could quite happily open the System File with ResEdit, but on my brand new Performa 6200 I get an annoying message that says 'This file is checked out read-only from an MPW project'. It lets me open the System File, but crashes if I try to **Quit** ResEdit, **Save**, or **Close** the file. This only happens when I try to edit an active System File. I can work on a duplicate and then swap the two over, but this is such a fuss. Do you know how to stop this annoying message? What is an MPW project anyway?

Laurence Pulle
Via fax

A 'Such a fuss'?! Would you work it down the road? *ResEdit* is a powerful programming tool, which enables you to edit any file's Resource Fork – the area used to store program code, windows, pictures, sounds, and other animals. You can even open the System File, which contains the core of your Mac's operating system.

We're big fans of *ResEdit* – it's a great program and we're impressed that Apple sees fit to give it away to anyone who wants it – but it is extremely

WHAT'S DAT?

Digital Audio Tape was first used in recording studios, where sound quality is paramount. Designed to record digitised audio data, the tape soon found its way into the computer industry as a backup medium. DAT tapes hold huge amounts of data (typically between four and 16Gb), but are very slow at accessing information because the tape has to be fast-forwarded or rewound to the relevant point.

AV MACS AND POWERMACS

Some Macs come with additional hardware that enables you to do cool things with sound and video. These AV (Audio-Visual) Macs can record and play 16-bit stereo sound and video – a feature not yet standard on all Macs. The first AV Macs were the Centris 660AV and the Quadra 840AV. The first series of PowerMacs – the 6100, 7100, and 8100 – had AV options, and although the AV has been dropped from the name, both the 7500 and 8500 are AV Macs as standard.

Continued on next page

ACROBAT

Acrobat is Adobe's cross-platform portable document creator. Acrobat integrates text and graphics into PDF (Portable Document Format) files that can be read on any computer with Acrobat Reader, a player program freely available from Adobe. For more details contact Adobe on 0181 606 4000.

dangerous, because to use it safely, you've really got to know what you're doing. If you make a mistake or delete something by accident, tough – there's no way to undo it. This program is not for beginners.

Editing an active System File, the one your Mac is using while it is running, is asking for big trouble. Your Mac needs this file and if it can't open it because you're working on it with ResEdit, it will crash. Nine times out of ten this will completely trash your

System File, meaning you have to get the Installer CD out and spend the rest of the day trying to get your Mac working again. To be fair, there are some things you can use ResEdit to change in an active System File – items which your Mac isn't using at the time. This is why ResEdit gives

you the option. Thing is, you need to know a lot about the Mac – and programming in general – before you start mucking about with this.

The MPW message refers to Macintosh Programmers Workshop, a set of utilities and resources for Mac programmers. Apple uses this to write its System software. ResEdit warns you because you are using it to attempt to open a software file which is active – one which your Mac is running code from. Under ResEdit's preferences, you can choose whether it should give you this warning when you try opening the active System File, but by default

the warning is switched on. You can turn this off if you must, but for your own sake you should leave well alone. Neither MACFORMAT nor Apple can be responsible for any damage you cause through improper use of ResEdit – you have been warned!

How old is my Mac?

EX-DEMO MACS

Q I have a couple of questions concerning my Performa 6200.

1. Immediately after I purchased the machine, I ran TechTool 1.0.9 over it and discovered that it had over 1,300 hours of use clocked up since its manufacture on 6/7/95. Does this indicate that the computer could have been used by the dealer as a demo machine (it was not sold as one), or does Apple run machines at the factory for shake-down purposes?
2. Can Norton Utilities 3.1.2 Speed Disk be used to safely defragment the IDE hard disk in this machine?

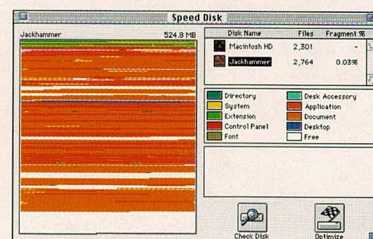
**M O'Neil
Poole, Dorset**



TechTool is a highly capable little program that tells you all about your Mac's internal bits and pieces. It even tells you the date of your Mac's birthday, so you can be sure and plan the party.

A And here's a couple of answers:
1. Apple does test all Macs as they come off the assembly line, but this takes a matter of minutes, so is unlikely to be the cause. There are three possibilities here, the first being that the dealer did indeed use your Mac as a demo machine. In order to rack up 1,300 hours of use, your Mac would have to be left on 24 hours a day for two months, or eight hours a day for seven months – it's one possibility. Another is that your Mac is wrong. This information is stored in the PRAM (Parameter RAM), a small section of battery-powered memory that stores the date, time and a few details about your Mac, such as when it was made and so forth. It's possible that this information has become corrupted at some point and your Mac is really not as old as it thinks it is. This is unlikely, but still a possibility. The final possibility is that TechTool is misreading this information and giving you an incorrect figure.

A lot depends on what the dealer who sold you the machine actually told you. The law states that goods must be fit for the purpose they were intended for, of merchantable quality and as described. In your case, it's this last one that counts. As far as we understand it, the dealer is not obliged to tell you if the Mac was used as a demo machine, but he cannot state that it's brand new – 'cos it ain't. Most high



Defragmenting your hard drive with a utility such as Norton Speed Disk will keep your Mac healthy and running smoothly.

street dealers are very careful to ensure that all ex-demo or soiled stock they sell is marked and priced accordingly. If your Mac came in a sealed box and all the bits were in their packaging, then it's a safe bet that it's brand new. If on the other hand it didn't, then it should be treated as suspect. At the end of the day though, your dealer is under no obligation to tell you if a Mac has been used for demo purposes unless you specifically ask. Likewise, they are under no obligation to reduce the price accordingly. After all is said and done, as long as your Mac works okay and was in as-new condition when you got it, then there isn't really much to worry about.

2. Yes, Norton Utilities Speed Disk 3.1.2 can be used to safely defragment IDE (Integrated Drive Electronics) drives. File fragmentation occurs when your Mac finds that there isn't enough free space on your hard disk to save a file in one continuous block. It then splits the file into smaller chunks and saves these wherever it can find space. The result is that the space on your hard disk is used more efficiently, but file access is slowed down because it takes a while to retrieve all the fragments. Although Speed Disk was intended for use on SCSI drives, the way your Mac organises files for IDE is much the same as for SCSI. Speed Disk 3.1.2 is an updated version that will work on Macs with internal IDE drives, such as the Performa 630, 5200, 5300 and 6200. If you have an older version of Speed Disk, such as version 3.1, then it's not recommended you use this on a non-SCSI Mac drive. If you want to upgrade your existing version of Norton Utilities, contact Symantec on 01628 592222.

Two keys are better than one
KEYBOARDS

Q I'm frustrated with my Mac. When I try to play a two-player game such as Vitamin (MACFORMAT 34 Cover CD), the gameplay is wrecked by the fact that I can only press down a limited number of keys before the computer stops registering them. This also happens when I play games like Marathon: I can't run forward turning and shooting because I have to press too many keys. If I upgraded my Apple Keyboard II, would this problem be fixed or is it just a drawback of the computer that can't be changed?

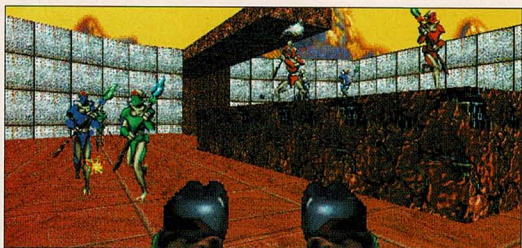
**James Head
Sydney, Australia, via e-mail**



'I knew I'd have to get an MPEG card, but nobody mentioned the CinemaScope screen!'

CRUISING THE KEYS

Hmm, well, maybe it's not really to do with keys, but Martin Deutsch e-mailed us with this tip for anyone who has Marathon 2. We tried it out in the office, using some hefty external speakers connected to the Mac in question, but had to stop when people started banging on the walls. Even Derek slunk in to see what all the fuss was about. It was the first time we'd seen him in the office since we gave him Hexen to play with...



Insert the Marathon 2 CD-ROM into your disc drive and open Apple CD Audio Player. Press Play to hear the theme tune in full – Bungie would do well to release this as a single. Now listen to track two. The first 20 seconds or so are silent, but keep listening, and you might just hear some singing...

If you've got any tips, tricks, or Easter eggs for the Mac or any of its associated software, we want 'em! Send them in to us here at 'Cruising the keys', MACFORMAT, 30 Monmouth Street, Bath BA1 2BW.

ANope, upgrading your keyboard isn't going to make any difference. When you press a key or click the mouse button, each event is stored in the event queue buffer, a section of your Mac's memory that stores your input. Your Mac then deals with these events in the order that they arrived. This is necessary because sometimes your Mac is too busy to deal immediately with keyboard input, so the events are stored until it has time to process them. The event queue is somewhere in the region of 20 events long, depending on your Mac and System version. That means a queue of 20 key presses and mouse clicks.

The problem you've identified, however, is more to do with the way these events reach your Mac. Because the ADB (Apple Desktop Bus) is a serial port, it can only deal with a couple of key presses at the same time. So what about keyboard combinations where you have to hold down more than one key at a time? You'll notice that all key combinations on the Mac use modifier keys such as **[shift]**, **[option]**, **[control]** and **[command]**. These are special keys, used to modify the signal sent from your keyboard to your Mac without your Mac having to do any additional processing. The result, in theory, is that you can hold down a total of about six keys at once – the four modifier keys and two alphanumeric keys. Try holding down three alphanumeric keys at once and your Mac will fail to recognise at least one of them. This is inherent in the way your Mac is built and buying a flash keyboard will not change it. However, if you're a bit of a game head (er, someone who likes computer games), you could try investing in a joystick or hand-held controller of the type found on a console. There are plenty to choose from, but for some reason Mac joysticks tend to be more expensive than those used by other platforms. We tested seven of the top controllers and joysticks in our first MACGAMER supplement (free with MACFORMAT 32). If you missed that issue, turn to page 117 for details of how to get hold of your copy.

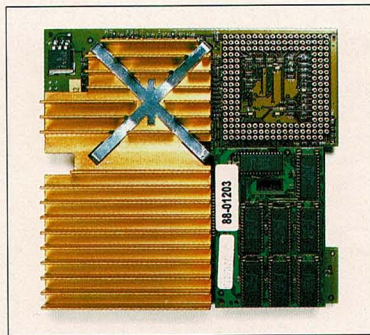
Warp five, Mr Sulu

COPLAND

Q I would like to upgrade my Performa 630 to PowerMac status. I have heard that the PowerMac upgrade cards only work with System 7 or 7.5 and that they will not work with Copland because it's not been written with them in mind. Is this true? When will new Copland-compatible upgrade cards be on the market?

Bruno Valcke
Kuurne, Belgium

A The DayStar PowerCard upgrade card does require System 7.5 to work and this is supplied when you buy one. As for Copland compatibility, the answer isn't simple. Apple is still developing Copland (the code name



The DayStar PowerCard will give you a huge boost in power, but will it be Copland compatible?

for the next version of the Mac operating system) and its features are far from established. Apple has shown off some core features – like the user-configurable interface and true multi-tasking Finder – at shows, but has kept everything else under wraps. Hard facts on Copland are difficult to find.

Copland will run on any PowerMac, from the first 6100 to the fastest 9500. It will also run on Performas with a PowerPC chip, like the 5200 and the 6200, and portable PowerBooks with PowerPC chips, like the 5300. But there is another type of PowerMac machine – one you've made yourself by fitting an upgrade card with a PowerPC chip into your old-style Mac (also known as a 68K Mac).

There are two basic types of upgrade card, each of which replaces a different proportion of the chips in your Mac. The first works in tandem with your existing processor, essentially using it as an interface to the rest of the components on the motherboard. This card also holds support chips for the new processor and PowerMac ROMs, but it still needs the components on the old motherboard. This is the type you'll need to get for your 630, and it's also the most common sort of card.

The second is known as a logic board upgrade, and turns your Mac

into a true version of one of the first PowerMacs – the 6100, 7100 or 8100. This option is only available for some of the Quadra and Centris models.

Because of the way Copland is designed, it will only work with the latter. Though your 630 now has a PowerPC chip, it still isn't a true PowerMac. Apple has still to prepare a complete list of which boards will or won't run Copland, but it's unlikely that it will work with anything less than a computer that has all the parts to make a full PowerMac.

What is more certain is that some features of Copland will be rewritten for the 68K version of System 7.5. These will probably include surface details like the customisable interfaces, but not the ability to multi-task.

The most useful thing we can add at this time is: don't worry about it. If your Mac and its current System version does everything you need, there's no point in upgrading. Yes, it would be nice to have some of these all-singing, all-dancing new features, but they're not essential. Support for older Macs is not going to vanish overnight. Apple is still producing software upgrades for the Apple II – a computer they stopped making over ten years ago. (If you still have one of these – perhaps employed as a doorstop – you can get software for it from Apple's FTP site at ftp.support.apple.com on the Internet.) There are over 20 million working Macs worldwide and many of them still aren't even capable of running System 7, so it's still a bit early to worry about whether your Mac will run an operating system that isn't even out yet.

IDE? SURELY NOT!

The Performa 630, 5200, 5300, and 6300 have internal IDE (Integrated Drive Electronics) drives instead of SCSI drives. IDE drives are used extensively in PCs, and although they can't be daisy-chained like SCSI drives, they are substantially cheaper.



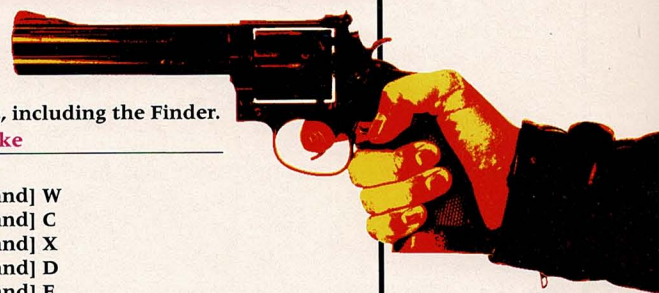
'Oh no... The Lemmings have escaped!'

Continued on next page

TROUBLE-SHOOTING KEYSTROKES

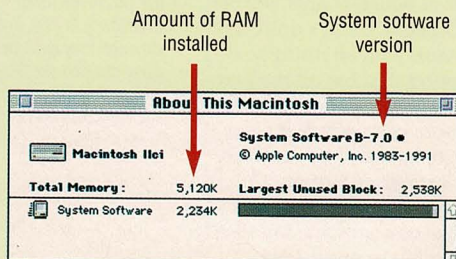
This issue we take a quick glimpse at power keys – keyboard shortcuts that save you having to drag your rodent all the way to the menu bar. These work in nearly all applications, including the Finder.

Command	Keystroke	
Clear	[delete]	
Close file/window	[command] W	
Copy	[command] C	
Cut	[command] X	
Duplicate	[command] D	
Find... file/keyword	[command] F	
Make alias	[command] M	System 7.5 Finder only
New file/folder	[command] N	
Open file	[command] O	
Paste	[command] V	
Print... file/window	[command] P	
Quit	[command] Q	Application only
Save file	[command] S	Application only
Select all	[command] A	
Undo	[command] Z	



The do-it-yourself problem solving guide...

One of the most common causes of problems on your Mac are Extensions or Control Panels clashing in your System Folder. It's easy to check if this is the case. Restart your Mac and hold down [shift]. Release the key when you get the message, 'Welcome to Macintosh.'



Extensions off.' If everything works, then the problem lies in your System Folder. The only way to work out which item is the culprit is by trial and error. Remove a few Extensions and/or Control Panels, then restart your Mac, without holding down [shift]. Keep on doing this until the problem no longer occurs and you've found the offending software.

If this doesn't work, try rebuilding your Desktop. Start up your Mac holding down [command] and [option]. You'll get a message asking if you want to rebuild the Desktop. Click [OK], wait for it to finish and see if this solves your problem.

If you're still stuck, use the form below to write to us. We'll need to know a few facts about your Mac, so when you're in the Finder, select **About This Macintosh** from the **Apple Menu**.

DID YOU KNOW?

If you hold down the [shift] key on Startup, you can temporarily disable the Extensions installed on your Mac. But if you wait until the Extensions have loaded and then hold the [shift] key down before the Finder loads, you'll prevent anything in the Startup Items folder from launching automatically.

Don't tell the missus

UPGRADES

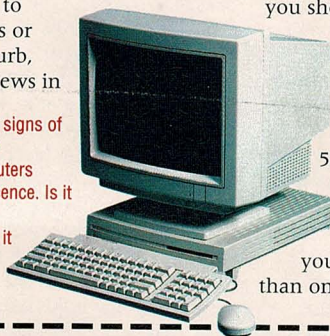
Q My wife has acquired an LCII through her work, and we are considering upgrading its memory and storage. I've seen adverts for 500Mb external hard drives for around £150 and CD-ROM drives from around £100. Are these reliable and can they be plumbed straight into the LCII? Bearing in mind that the LCII will have to be returned eventually, could any hardware we buy be added to a newer machine at a later date?

Philip Grogan
Milngavie, Glasgow

A Good and bad news. The good news is that any storage device you connect via the SCSI (Small Com-

puter Systems Interface) port on the back of your LCII will work with any Mac since the Plus, and any Mac planned for the foreseeable future. As for the question of reliability: like anything else, you get what you pay for when you buy Mac peripherals. The best way to find out how a product performs is not to read the adverts or promotional blurb, but to read reviews in

The LCII is showing signs of a nasty disease that consumes all computers eventually: obsolescence. Is it worth upgrading? Depends if you own it or not... See 'Don't tell the missus'.



magazines such as MACFORMAT. This way you are sure to get a completely independent and objective evaluation of the product – nobody is trying to sell you anything.

In the case of storage, however, there really isn't a lot to pick between different brands because the guts of most drives are made by the same company. In the case of hard drives, this is generally Quantum, Conner, Seagate or Fujitsu. The company you buy the drive from just puts it in a case and provides you with software, cables, and a SCSI terminator. In short, before you buy, make sure you read the reviews and shop around for the best price.

The bad news is that if you buy additional memory (RAM) for the LCII, you will have difficulty transferring it to a new Mac at a later date. The reason is that the LCII takes 30-pin SIMMs and new Macs use either 72-pin SIMMs or the new 168-pin DIMMs. There are adaptors available that enable you to use older SIMMs with newer Macs, but the SIMMs an LCII uses will be too slow for a Power-Mac anyway. It's for this reason that you should perhaps consider buying

your own Mac. For little more than it'll cost to upgrade the LCII, you could pick up a Performa 630 with a CD-ROM drive and a 500Mb hard disk already built in. It's a hell of a lot faster than the LCII and you're probably better spending your own money on this, rather than on a Mac you've borrowed. **MF**

If you send in a question for the MACFORMAT experts to solve, please fill in and include this form (or a copy of it). And please make sure that you include all the relevant details – version numbers of software and so on – so that we have the best chance of helping you. Send your form and question to: MacAnswers, MACFORMAT, 30 Monmouth Street, Bath BA1 2BW or fax it to us on 01225 446019.

Name

Address

.....

.....

.....

Your Mac

(For example, Performa 200, IIfx, PowerBook 145):

.....

System version

(see About This Macintosh screenshot above):

Amount of RAM

(see About This Macintosh screenshot above):

Are you using Virtual Memory? YES/NO
(This is accessed from the Memory Control Panel under System 7)

Do you have 32-bit addressing turned on? YES/NO
(This is accessed from the Memory Control Panel under System 7)

Details of any relevant hardware which could help us to answer your question:

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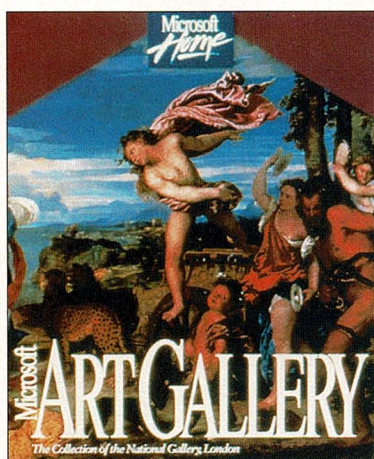
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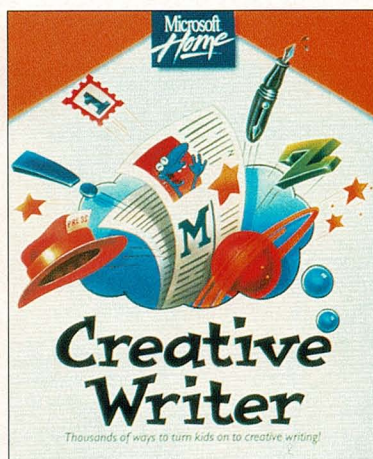
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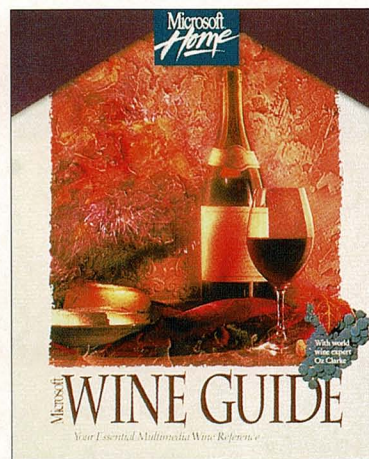
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Graphic text tricks

ClarisWorks has a very good word processor and a capable drawing package. Derek Smith reveals some special ways in which you can combine the two.

NO OPTION?

On some of the latest keyboards, the [option] key has become the [alt] key. This is simply because Mac owners were really getting to grips with their computers and the powers that be wanted to keep things confusing.

The *ClarisWorks* word processor module is a shining example of simplicity and ease of use, overcoming the need of programmers to show off how clever they are by producing ridiculously complex features that no-one wants.

The drawing module is much more modest, and is not going to win any awards by itself. But because *ClarisWorks* is an integrated package, combining the two is easy, and this is

where you'll discover ways of really livening up your standard word processor documents.

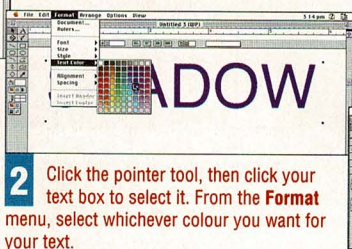
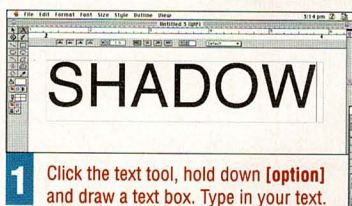
In *ClarisWorks*, text can be entered in two different ways. First, you can type it into the word processor module. This is the standard way of entering text, and enables you to use indents, tabs and the other formatting tools.

You can also enter text via the drawing module. This text is typed into a text box, which acts like a graphic object, such as a rectangle or

circle. This means it can be dragged around the screen, rotated, and flipped like any other graphic item.

To create a text box, click the text tool on the tool palette, then hold down [option] while drawing a box of the desired size. You can now type text into that box. Click the pointer tool, and you can now reshape or move the box at will with no effect on regular text entered in the word processor module. Here are some ideas of what you can do with text boxes. **MF**

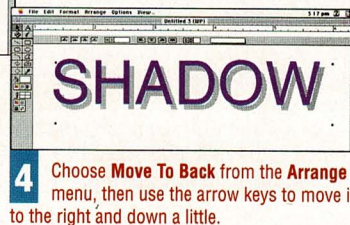
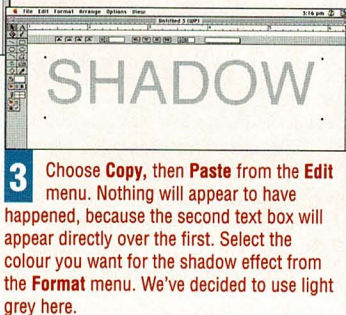
IDEA 1: SHADOWED TEXT



ClarisWorks, like all text programs, offers you the standard Macintosh shadow text option from the **Style** menu.

Unfortunately, this looks awful and should only be used in cases of dire talent shortage. A much better

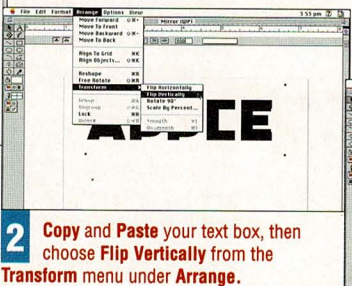
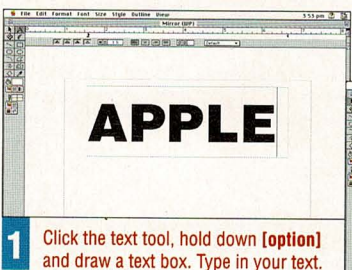
way is to make use of text boxes. Any colour can be used for the text and shadow effect, but for a realistic 3D feel, you might like to try using a grey shadow. The amount you offset it from the original dictates the depth effect, but don't get carried away.



MOVE TO BACK

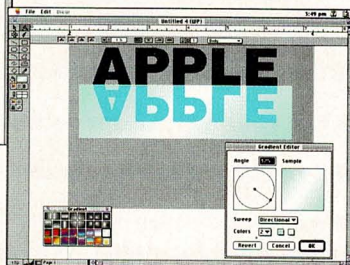
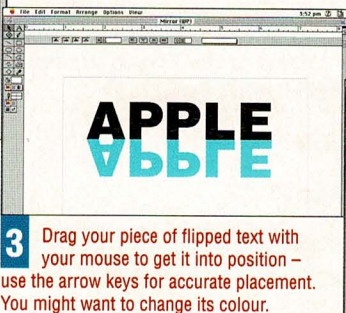
When you select a graphics object and choose **Send To Back** from the **Arrange** menu, the object not only goes behind any other graphic objects, but also behind text entered in the normal word processor.

IDEA 2: MIRRORED TEXT



ClarisWorks enables you to flip graphic objects in the horizontal and vertical planes. Because a text box acts as a graphic object, it can be flipped as well.

There are loads of uses for flipped text, one of the most popular being to create a mirror image of the original. This technique can be used for a variety of logos or striking headlines.



ROTATED

Even if you have rotated or flipped text, you can still edit it. Select the text tool, then click on the text box. It temporarily returns to horizontal to enable you to edit it.

IDEA 3: DROP CAPS

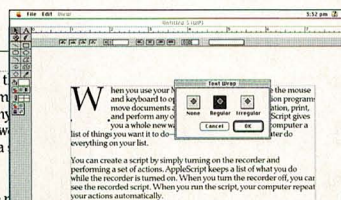
Drop caps are the large letters found at the beginning of magazine articles – you'll notice that **MACFORMAT** uses them all the time. They help the eye find a starting place to begin reading. Some DTP programs can create

these automatically – and while *ClarisWorks* can't, creating them manually isn't all that difficult when you use text boxes.

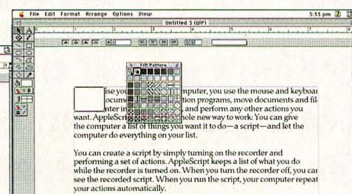
When you use your Macintosh computer, you use the mouse and keyboard to open documents and application programs, move documents and folders, enter information, print, and perform any other actions you want. AppleScript gives you a whole new way to do a script – and let the computer do everything on your list.

You can create a script by simply turning on the recorder and performing a set of actions. AppleScript keeps a list of what you do while the recorder is turned on. When you turn the recorder off, you can see the recorded script. When you run the script, your computer repeats your actions automatically.

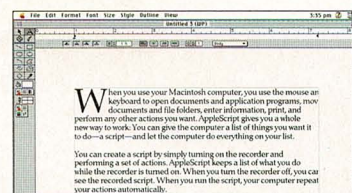
2 Type the first letter back in, highlight it, then change the size to approximately four times the size of your regular text. Click the selector tool, and move your text box to the correct place at the start of your document.



3 At this point you can wrap the text around your letter, to create the drop cap and finish. The problem with this is that the text box will be too deep, as it has to allow for a descender on lower case letters such as 'g' or 'y'. So instead...



4 Draw a rectangle around the drop cap, then give it a transparent fill and line colour, so it is invisible.

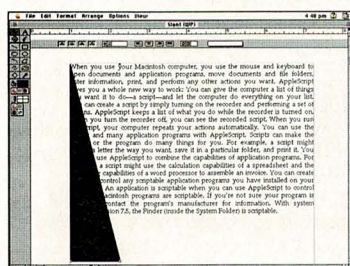


5 With the rectangle still selected, choose Text Wrap from the Options menu, and select Regular.

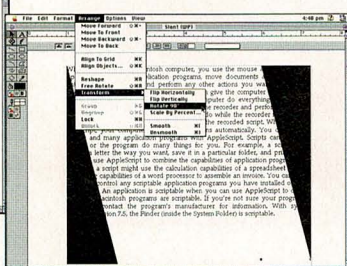
IDEA 4: SLANTED COLUMN

Using the ruler indent tools in *ClarisWorks*, you have a lot of power over formatting and your paragraphs, but

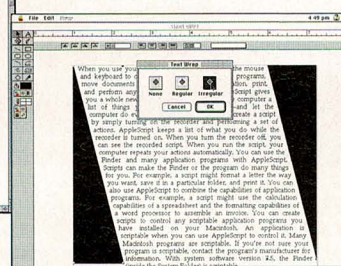
they don't enable you to slope a paragraph. To do this we'll need to use the drawing module, and in particular, the text wrap feature.



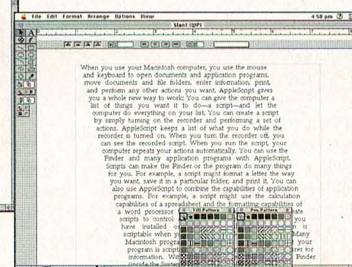
1 Create your paragraph with no special formatting, then use the polygon tool to draw a triangle down the left-hand side of your text.



2 You'll need a second triangle, but instead of drawing it, Copy and Paste the first one, then choose Rotate 90° twice from Transform under the Arrange menu. Move it into position on the opposite side of the paragraph.



3 Click one of the triangles with the pointer tool, then hold down [shift] and click the second triangle so they are both selected. Choose Text Wrap from the Options menu, then click Irregular.



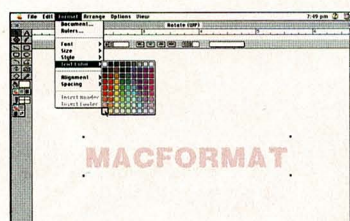
4 With the two triangles still selected, make them both invisible by giving them a transparent fill and line colour.

IDEA 5: SPIRALLING TEXT

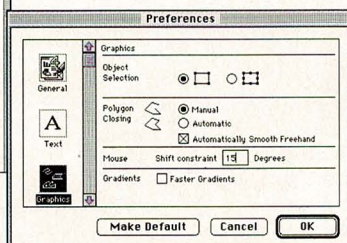
Fading text in or out as it spirals is a useful effect. The problem is getting the text to rotate by the correct amount each

step. In the paint module you can type in a specific amount for a selection to rotate, but this feature is lacking in the draw module. However, there is a trick. When you choose Free Rotate from the

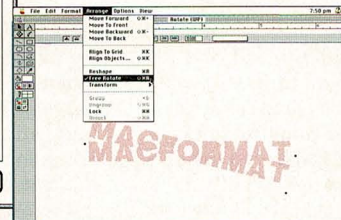
Arrange menu, you can rotate an object in steps of 45° by holding down [shift]; or you can specify the angle. Choose Preferences from the Edit menu and click Graphics. Here you can enter the value that using [shift] will constrain the rotation by.



1 Create a text box, write your text, then select it with the pointer tool. This will be the text furthest back in the spiral, so give it the lightest colour.



2 Bring up the Graphics preferences box as described above and type in a constrain value. We've used 15° here.



3 Copy and Paste the text box, then choose Free Rotate from the Arrange menu. Hold [shift] and drag one of the handles to rotate the text by the amount you specified in the Preferences window.



4 Give the new text box a slightly darker colour, then continue to repeat step three until you have created a spiral.

NEXT ISSUE

In the second part of this article, we'll show you some even more impressive graphical text effects.

Building on experience

Britain's newest theme park, Legoland Windsor, is designed for 'learning through play'. Alex Summersby discovers Macs at the centre of the experience.



Legoland's Dacta Workshop boasts two rooms, each with 16 Performa 6200s, where kids can experiment with computer control.

'Legoland Windsor is a wonderland dedicated to the creativity and imagination of children.'



Following step-by-step on-screen instructions, children assemble a motorised Lego model and then make it move using the Mac and an electronic control interface. Afterwards they can experience a full-scale version of the model in the park.

The lions are gone from Windsor now. In their place stand life-size dinosaurs, pirates and fairytale characters. Where exotic animals once roamed, you now find a different kind of wildlife: children aged 2 to 13, frenetically enjoying themselves. For where the Windsor Safari Park once stood, there is now Legoland Windsor – a breathtaking theme park packed full of activities and attractions, and of course hundreds of models built from those familiar, brightly-coloured little bricks.

There are 17 rides in all, five live-action shows and 21 attractions, including Miniland, which features one-20th scale models of European cities built entirely of ordinary Lego bricks, with moving trains, cars, cranes, bridges and ships. There's a total of 16 places to get food, and toilets wherever you turn. For the young, it's a plastic paradise.

But just like the colourful bricks themselves, Legoland has an extra dimension: it's not just fun, it's educational too. Kids will absolutely love the Waterworks area, for example – shooting targets with water cannon, lifting beach balls on fountains, making water 'flow uphill' by raising it in an Archimedes screw, and so on... But they'll also be learning about gravity,

fluid dynamics and machines. Absorbing it, you might almost say. (Luckily, in a typically thoughtful touch, there are big hot air ducts provided to dry them off afterwards.)

As Legoland's publicity puts it: 'The Lego group is dedicated to the principle of learning through play. Legoland Windsor is... a new kind of theme park which has learning at its core. Each of the playscapes and attractions is designed to meet children's development needs as well as stimulating a desire to explore and discover.'

Apple at the core

For more structured learning, there's the Dacta Workshop (Dacta being the educational arm of Lego). The Workshop programmes are designed for school groups, though others can use the facilities at other times. Each programme is written by practising teachers in conjunction with Lego Dacta and the Berkshire Local Education Authority, and supports the National Curriculum.

There's a programme called 'Tall Towers', for example, in which children aged five to seven can investigate the principles of structure and stability by building various structures and then testing how easy they are to knock down again – great fun, but also

designed to introduce the Design and Technology topic of Structures at Key Stage 1 of the National Curriculum. In the same way, 'Fairground Wheels' introduces gear wheels (KS 1-2, ages 5 to 8), 'Get Moving' demonstrates movement and forces (KS 2, ages 7 to 9), and 'Round and About the Wheel' introduces wheels and axles (KS 2, ages 8 to 11).

In the Information Technology workshop modules, slightly older children can explore the basics of computer controlled robotics using Macintosh computers. Apple UK has provided 32 Performa 6200s for the Dacta Workshop, with a clever plug-in control interface and a specially-written program which takes kids through their project step by step.

It works like this. Before the school group visit, teachers can use a resource pack (provided by Legoland Dacta) to introduce the relevant topic areas and prepare the children – there's lots of background information, advice about activities and even a helpful checklist for planning the visit. When the children arrive at the Dacta Workshop on the day, they pair off and each pair gets a Lego model in a large tray-like plastic box. Under the supervision of trained Legoland staff, the children follow a step-by-step guide on the Mac which takes them through the process of putting together their model, connecting it to the interface and controlling various working parts of it by clicking on-screen buttons with their mouse.

Taking control

Younger children start with a module titled 'Taking Control' (KS 2, ages nine to eleven). They get the pieces of a Lego merry-go-round (partially assembled, so it won't take all day!) and put it together, following the slideshow on-screen. (This makes it easy for each pair to proceed at their own pace, or go back if they need to. The Macs are also networked to the

LOTS OF LEGO

Around 25 million Lego bricks are used in the models in Legoland Windsor, with nearly a quarter of a million in the biggest – the life-size brontosaurus near the entrance. The model Tower Bridge in Miniland took 46,000 bricks and 500 man-hours to build.

supervisor's computer, making monitoring and supervision easier.) They begin by connecting the motor to the control interface, and make the merry-go-round turn either clockwise or anti-clockwise by clicking on the appropriate buttons on-screen.

Then they add more pieces, making the model progressively more sophisticated: a ticket office, with a bell to sound and a light to turn on before the ride starts; a boom gate; even a working electric eye.

Slightly older children can tackle the module titled 'Computer Control' (KS 3, ages 11 to 13), which involves building a more complex model of a pirates' 'treasure island', complete with a robot arm, which they must program to pick up a 'treasure map' when an approaching boat triggers an electric eye and then move it to somewhere safer.

In both projects, the children have to connect each extra part of the model to the appropriate part of the control interface, so they learn to distinguish an input device from a switch or an output controller. At various points they can act out a 'story' of their own creation, recording quite a complex sequence of actions as easily as recording a macro by clicking on the control buttons on-screen – for example, lower gate, wait for late-comer to trip sensor, raise gate and then lower it again, sound bell, flash

light, start merry-go-round... They can then play the routine back in real time and even view it in Logo script form, so they get a clear idea of how actions are represented in terms of step-by-step instructions.

Stepping out

But it doesn't end there. After these 'Minds-on' and 'Hands-on' activities, the children can then experience larger-scale applications of the same principles in the park itself. 'Eyes-on', they can visit Miniland and watch a mini Tower Bridge open when an approaching boat triggers an electric eye sensor, or see a container crane grab and move objects, just as their models' robot arm did. 'Body-on', they



*It's stimulating,
absorbing, exhausting and
educationally brilliant.*

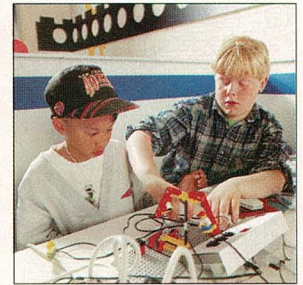
can experience a merry-go-round or the 'Pirate Falls' ride and, armed with prepared worksheets, think about the sequences of instructions involved, how sensors have been used, and so on. The worksheets are included in the resource pack for teachers to

photocopy ahead of time. There are suggested follow-up activities as well, to reinforce the principles they've learned once they're back in the classroom.

In this way, the children can explore computer control and sensor input on a manageable scale themselves, experiment with the input, storage and modification of simple commands, and then experience real-world equivalents in the park. As Legoland's Education Officer puts it, 'Pupils are challenged with the unique combination of being able to model, test, observe and physically feel the ideas being taught.'

It's stimulating, absorbing, exhausting, and educationally brilliant. Kids learn quickly and eagerly. Apple's contribution is crucial to adding educational value to the children's experience, drawing out the lessons to be learned in a way that meets the needs of both the National Curriculum and the children involved. The friendliness, ease-of-use and stability of the Macs make them the perfect linchpin for the Workshop programmes. Like Legoland itself, the Macs help make the learning fun.

MF



The Workshops combine Lego model building with simple computer control – once you've connected it all up, you can make your model move just by clicking on a button on-screen.

A GRAND DAY OUT

Legoland Windsor is two miles from Windsor on the Bracknell/Ascot road, and it's well signposted as far away as the M4. It boasts five main themed areas, covering 40 acres:

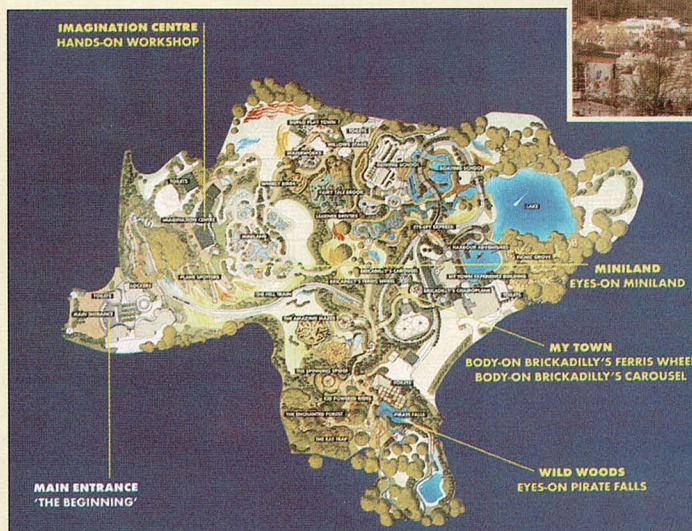
- Miniland, with models of European cities;
- the Duplo Gardens, aimed at younger children, including a Fairytale Brook ride and The Waterworks;
- Lego Traffic, with driving and boating schools for older children;
- My Town, an activity area with shows, a Magic Theatre and circus and fairground;
- and the Wild Woods, which includes rides and mazes ('Pirate Falls' among them).

Legoland Windsor is the second Lego theme park – the original in Denmark last year attracted 1.3 million visitors. The UK park hopes to attract even more than that in its first year, but it has an ingenious advance booking system to avoid overcrowding: when the park reaches its daily capacity of 14,000 (bookings plus visitors who just turned up on the day), the gates are closed and only ticket holders are admitted.

The place is full of well-planned touches like that – if you buy something at any of the four shops, you don't even have to lug it around for the rest of the day; you can have it waiting for you at the exit. It's well-kept and efficient, with plenty of toilets (but be prepared for queues at the most popular attractions, like the Boating School).

There are five restaurants/café and 11 food stands, but refreshments are pricey – a single cup of tea will set you back 99p, and that's on top of the high admission charge of £15 per

A brontosaurus-eye view of Legoland Windsor, looking over the park and towards Windsor Castle in the distance.



40 acres of adventure, from the 'Imagination Centre' containing the Dacta Workshop (left) to Pirate Falls (bottom)

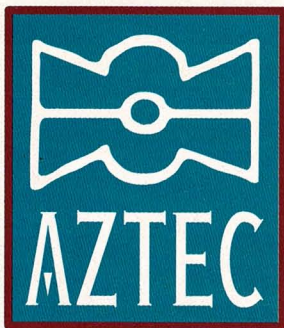
adult and £12 per child, or £50 for a family (though this does drop to £6 each for schools groups, plus a free teacher's place).

Legoland Windsor's MD points out that the price is still good value in terms of cost per hour compared to, say, a trip to the cinema, and no doubt that's true. There's certainly more than enough to fill a very long and memorable day, but you couldn't call it a cheap day out. It is brilliant fun, though...

■ Legoland Windsor is open March to September, plus half-term week in October, 10am – 6pm (8pm in July and August).

■ General bookings: 0990 626364. Group bookings: phone 01753 626100, fax 01753 626200.

■ For general information, call 0990 626375. For details of the Schools Programmes, contact Legoland Windsor's Education Officer on 01753 626104.



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Reviews

Authoritative tests of the latest hardware and software, from printers to games.

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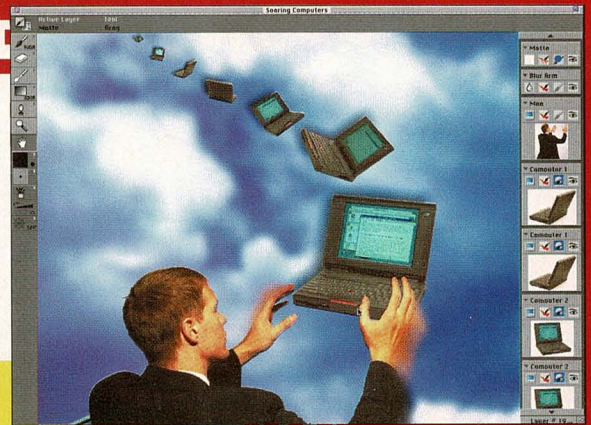
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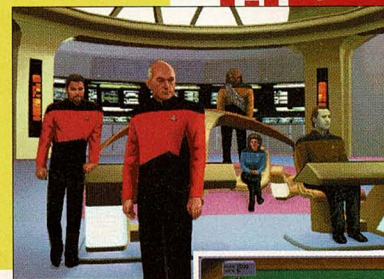
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The capacity and the speed of a hard disk, with the convenience of a removable drive. Page 86



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Put some colour in your life

Colour printing used to be an expensive business, but now good quality colour printers can cost you as little as £300. Rod Lawton investigates.

Whatever you use your Mac for – whether

it's graphic art, accounting or word processing – a printer is probably the first peripheral you'll buy, and the most important. It's truly the interface

between your Mac and a real world which still relies heavily on the written word. Never mind e-mail, digital documents and Web pages – without a printer, your Mac might as well be an expensive paperweight.

If all you ever want to do is print out the occasional letter, a cheap mono printer could be all you need. But all desktop Macs since the Classic II are colour-capable, so your world on-screen is almost certainly in colour, and there are sure to be occasions when you'll want to be able to print in colour too. With more than acceptable colour inkjets now available for less than £300, it costs very little to give yourself the option, even if you rarely use it. Or you can go for a top-quality dye-sub printer costing thousands of pounds.

So which type of colour printer is right for you? Which offers the best output while still giving you value for money? Over the next seven pages we take a close look at affordable colour printers to help you choose which one is best for your particular needs.

THE WORD ON THE STREET...

...is that you should rarely have to pay the manufacturer's quoted price for printers. Discounts from mail order suppliers can range from 15% to nearly 50%, so it pays to shop around. Before you do, check out the MACFORMAT Buying Advice on page 132 of this issue.

Continued on next page

APPLE STYLEWRITER 1500



This is Apple's replacement for the old StyleWriter 1200. It's a cyan-yellow-magenta machine (no black cartridge), which keeps costs down – but print-outs don't give you

really solid blacks, and mono-only printing could prove expensive unless you take the slightly fiddly step of swapping the colour cartridge with the plain black alternative and switching them back when you've finished.

The 1500 comes with ColorSync 2, Apple's colour-matching system. It uses reference files called device profiles to reproduce the colours you see on the screen as exactly as it can in your print-outs.

As usual with Apple products, the documentation is clear, friendly and easy to follow. Setting up the printer and its software drivers is straightforward and you certainly won't have any trouble finding room for the 1500 on your desktop. It may not be designed as a portable printer, but it's so light and small it's halfway there, and you can even get an optional battery pack. Like the other

StyleWriters, it has a wonderfully uncluttered design.

The resolution is quoted as being 720 x 360 dpi (dots per inch) in black-and-white and 360 x 360 dpi in colour mode. We printed three samples of the

same picture on plain, coated and glossy paper (all the printer drivers in this round-up have an option for each). Despite lacking black ink, the test print-outs were of a very high quality. On plain paper only the HP850C was noticeably better. On coated paper the 1500's output was slightly mushy, and on glossy paper it produced a positively soft-focus effect.

If you do plan to use plain paper, you'll find the 1500's performance is remarkable. Colour rendition was excellent apart from weak blacks in shadow areas. Although technically speaking it has a lower resolution when you compare it to the other Apple printers, the difference was negligible on plain paper. Couple that with the low price and compact style, and you have a real bargain buy.



The new StyleWriter 1500 from Apple: cheap, neat and really rather good all round

STYLEWRITER 1500	
Price: £276. Out: now.	Contact: Apple on 0800 127753.
MACFORMAT RATING 90%	

APPLE STYLEWRITER 2400

CHEAP ETHERNET COMPATIBILITY

At the same time as releasing the StyleWriter 1500 and 2500, Apple has launched a low-cost Ethernet adaptor which enables you to connect your printer to an EtherNet network. It doesn't offer you the raw speed of a built-in EtherNet interface, but it does substantially improve on the speed of the standard serial connection, as well as providing networking ability.

The 2400 is being superseded by the new 2500, but you'll still be able to find quite a few 2400s in the shops.

We've included it in this round-up because it makes an interesting comparison with the newer model.

Apart from the increment in the digits, there's little to visibly distinguish the 2400 from its newer replacement. The clean, attractive lines are pure Apple, while the output is pure 2200. This is no real surprise since the machines share the same printing engine. Like its portable equivalent (which will remain in production),

the 2400 shows a strong magenta shift in the blue sky of the original image. Definition on all the paper stocks is the same as the 2200, but the 2400's average print-out time was unaccountably slightly longer.

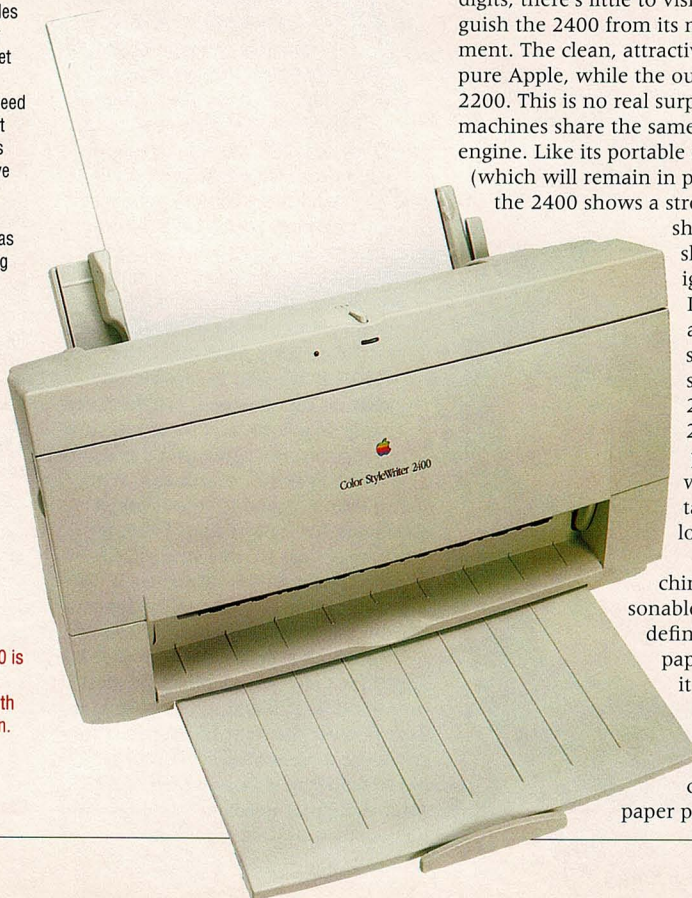
Both machines show reasonable contrast and definition on plain paper stock, but it takes coated paper to produce results of any real quality. Glossy paper produces the

best results, although the dithering effect is still prominent. A photographer would call it 'grain'.

Although glossy paper produces the best results, the biggest step in quality occurs between plain and coated paper. Given the difference in price between coated and glossy, the coated option looks like your best choice.

There is another problem with glossy paper: the inks actually attach themselves to the paper's coating rather than to the paper itself, and this coating comes off easily – especially if you make the mistake of stacking printouts together (the coating of one sheet sticks to the backing of the sheet above it). Ordinary coated paper seems much less susceptible to this sort of damage, and has a matt finish which you may find more attractive to handle on a regular basis.

On coated and glossy paper, the 2200 and 2400 both produce strong, colourful results, but their colour shifts and gritty feel leave them trailing most of the other models tested.



The StyleWriter 2400 is showing its age. Images are gritty, with poor colour rendition.

STYLEWRITER 2400	
Price: £350. Out: soon to be discontinued	Contact: Apple on 0800 127753.
MACFORMAT RATING 68%	

APPLE STYLEWRITER 2500

The 2500 offers 360 x 720 dpi resolution for both colour and mono output, together with four-colour printing (like the 2200 and 2400). Your colour images are produced with good, solid blacks and you don't have to fiddle about swapping cartridges when you want mono print-outs.

In appearance, the 2500 looks like the rest of the StyleWriter family – even the machine it's replacing. One of the major advantages of printers designed to work solely with Macs is that all their controls are based in the software, and not in a series of unfathomable buttons and LEDs plastered across the front of the machine.

Both the 1500 and 2500 StyleWriters are very new, but not necessarily in terms of hardware. Apple is keen to point out that it's the software

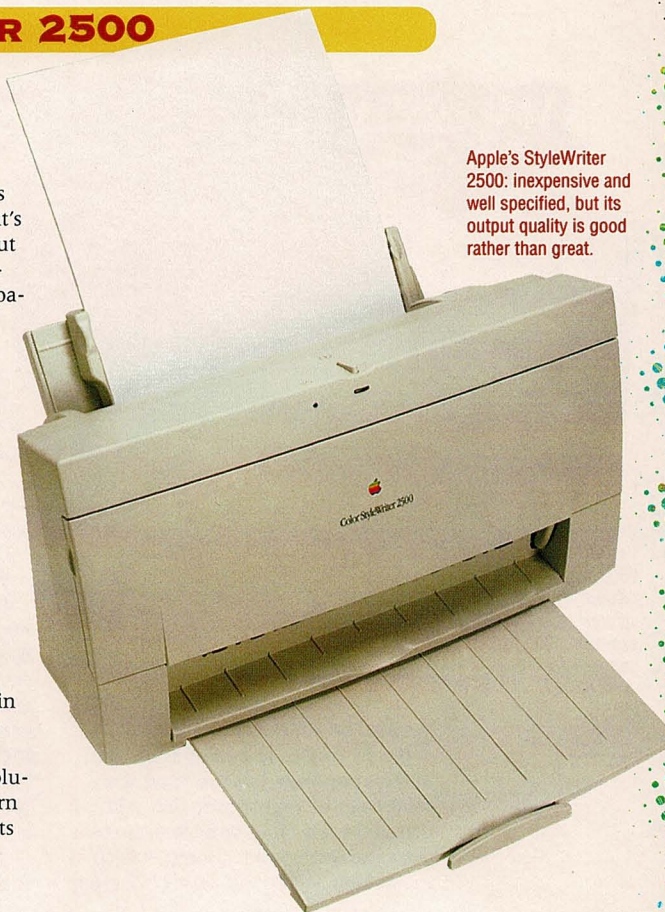
drivers that control the image just as much as the print engine, and both machines feature the latest-generation Apple drivers.

Well, the 2500 certainly performs better than the 2400, the machine it's replacing. On plain paper, the output is a little mushy and lacking in contrast, but on the coated and glossy papers it produces good contrast and generally excellent colour. Greens turn a little dark and flat and the red tulips in the foreground also have too much black in them, but overall the results are satisfyingly realistic for the price.

The dithering is effective too, striking a good compromise between smooth tones and definition (the two don't always go together, since the easiest way to achieve smooth tones is to get the dots to spread out and become indistinct).

Although the 2500 is a vast improvement on the 2400, it's not in the same league as more expensive non-Apple inkjet models like the Stylus Pro and the HP850C. Its resolution is only fair, the dithering pattern it uses is still quite prominent and its colour balance could be improved.

Apple's StyleWriter 2500: inexpensive and well specified, but its output quality is good rather than great.



STYLEWRITER 2500

Price: £363. Out: now.
Contact: Apple on 0800 127753.

MACFORMAT RATING **84%**

APPLE STYLEWRITER 2200

The StyleWriter 2200 is intended as a portable printer but will work very well on your desktop too. Like the 1500 and 2500, it's bundled with ColorSync 2, which aims to offer the best possible colour fidelity. These machines also come with Desktop printing – each installed printer has a Desktop icon enabling fast drag-and-drop printing and easier handling of print jobs. Unlike the 1500, the 2200 offers four-colour printing for extra contrast and proper black tones. Because of imperfections in printing inks and processes, you can never get a real black by combining cyan, magenta and yellow inks – at best you get a dark grey or a dark, muddy brown.

Flat and sleek and black, the 2200 is badged as a portable printer – indeed, it's supplied with a rechargeable battery pack. But it's no lightweight once the pack is installed, and once in your briefcase it wouldn't leave room for much more than an M&S sandwich. If you're serious about portable computing, you'll need a big-league briefcase to carry round both this and your PowerBook. Otherwise, take a look at Citizen's tiny PN60 (see the alternatives on page 82).

ColorSync or no ColorSync, the blue sky of the original picture veered uncomfortably towards magenta. This is one of the problems of translating RGB colour information into CMYK inks – blues turn magenta and greens lose their vibrancy. In this case, the green tones remained bright and warm, but the colour shift in the sky was pronounced.

Using coated paper rather than plain didn't help the colour balance, but it did improve the sharpness and smoothness of tone, although the dithering pattern did remain clearly



The StyleWriter 2200: a relatively inexpensive portable inkjet but it could cost a fortune to run.

STYLEWRITER 2200

Price: £382. Out: now.
Contact: Apple on 0800 127753.

MACFORMAT RATING **78%**

visible. It doesn't give you the best quality, but its size and portability make the 2200 an attractive option for those on the move. The cost and limited life expectancy of the ink cartridges (only 40 pages at 30% coverage) make it an expensive choice though.

EXTRA BLACK

When cost is a major factor and you will only want colour print-outs some of the time, you should pay the extra for a printer with a separate black ink cartridge. This gives more depth to your colour print-outs and much lower costs when

you only want black and white pages.

Thermal wax and dye-sublimation printers (the other two technologies reviewed here) cannot use plain paper – they both need special print materials, adding to the cost.

Continued on next page

HEWLETT PACKARD 850C



Hewlett Packard's 850C: top colour/contrast reproduction, excellent plain paper performance and great value overall.

It may be a little less weighty than the HP1600C, reviewed at the end of this round-up, but the 850C is a solid piece of engineering that will demand a fair bit of your desk space. Does the quality of its output match the quality of its engineering? Hewlett

Packard claims that its colour inkjets have been designed to work well with plain paper, and the 850C certainly did – its plain-paper output was a match for the coated output of both the StyleWriters and the PostScript printers. Using coated paper, the image was even richer and sharper, and had more contrast. The results on glossy paper were slightly disappointing though, as the colours thickened to the point where they began to look muddy (a problem that also affected some of the other printers when outputting to glossy paper). Despite this, the smoothness of the 850C's tone was higher still.

On all paper types (but most noticeably on coated paper), the 850C had the best combination of sharpness, smooth tones and accurate colour. The Epson Stylus Pro was smoother and possibly a fraction sharper, but just couldn't keep up in terms of colour and contrast. Unlike the Epson, the 850C's dithering pattern was still visible on all paper types, but its overall combination of qualities puts it at the head of the field.

Although the quality of the print engine and the inks do play a big part

in the quality of any printer's output, it's the driver software that basically controls which colour dots end up where. Put another way, the software regulates the dithering pattern and colour balance. In this field, the 850C offers the complementary technology of HP's proprietary Resolution Enhancement. This triples print times (which were otherwise similar to those of the other machines) but it does provide you with higher quality.

Oddly, the blue sky in the test image exhibited some faint but discernible magenta-tinged patches when the 850C printed it. They didn't seem to correspond with anything in the real image, but appeared on all three paper types and were presumably a product of the driver software. There were no oddly-tinged areas anywhere else in the test image. Strange but true.

HP 850C

Price: £517. Out: now.
Contact: Hewlett Packard on 01344 369222.

MACFORMAT RATING **92%**

EPSON STYLUS PRO



The Epson Stylus Pro: stunning smoothness and resolution for ink-jet technology.

This is one big, heavy machine – only the PostScript HP1600CM is weightier. Unlike Apple's StyleWriters, the Stylus Pro isn't a machine you can move around according to where you need it – wherever you drop it, it stays.

In styling terms, the Stylus Pro is not a fashion statement. If the StyleWriters are the Ferraris of the

printer world, this machine would be a Volvo 340. It's big, square, and as functional as a breeze block (not that a breeze block isn't a functional thing to have around occasionally, of course).

But performance is what you really need to know about, so does the Epson deliver? Oh yes. On plain paper it fares little better than any of the other models tested – plain paper just doesn't take inkjet inks well enough to produce strong colours, and the dots also tend to spread, because of the paper's absorbent surface.

On coated paper, though, the results are quite superb. The dithering is extremely fine, allowing areas of superbly smooth tone. In the sky area of the test print-out, the dots were practically invisible.

Greens were disappointing though. In the test print-out, the detail in the hedge and tulip stalks blurred into a muddy mass of even-toned green, while the red tulip blooms stood out with migraine-inducing luridness.

Overall the Stylus Pro gives breathtaking quality for an inkjet printer, its proprietary *Microwave* resolution

enhancement software leaving it only really challenged by the Hewlett Packard 850C.

The Stylus Pro does come with some options for modifying the way colour is reproduced, but the inclusion of proper scientific calibration would be more reassuring than a reliance on options with simplistic names like 'vivid colour'. Then again, colour-matching is a complex and imperfect science, and you are unlikely to want to bother with vast amounts of raw theory and making calculations.

Interestingly, many of the machines we tested in this round-up came with their own background printing utilities to replace PrintMonitor, an ante-diluvian utility apparently designed specifically to wipe out nine tenths of your CPU's clock cycles while it's running. The utility provided with the Epson was among the best and will only marginally affect your Mac's performance while it handles the print-out in the background.

EPSON STYLUS PRO

Price: £727. Out: now.
Contact: Epson on 01442 61144

MACFORMAT RATING **90%**

TEKTRONIX PHASER 140

While the Fargo PrimeraPro, for example, is a non-PostScript printer that can be supplied with a PostScript interpreter, the Phaser 140 is a true PostScript printer. This places a much smaller load on your Mac's own processor, but the trade-off is a resolution of a mere 360 x 360 dpi. The Phaser's colour-handling features are impressive and its documentation contains a substantial section on colour technology, different colour systems and the ways in which you can tune its driver according to your documents and needs. For example, you can make the output simulate either on-screen colours or those you'd get from a printing press. The driver also uses *Finepoint* software to increase the sharpness of your output.

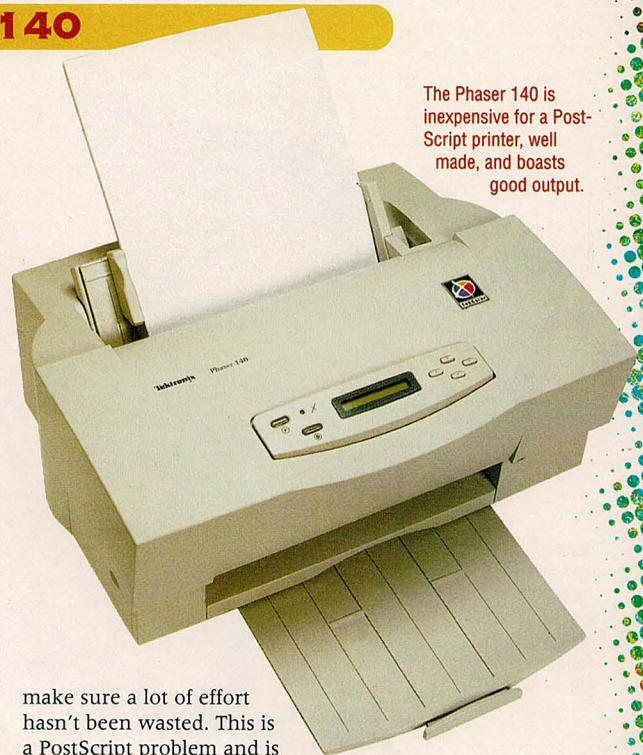
One of the by-products of expensive technology tends to be high-quality

construction, and the Phaser 140 is certainly well-made. It's compact, nicely styled and has the minimum number of buttons and indicator lights. After Apple's own StyleWriters, the Phaser is probably the most good-looking. It's also a lot less bulky and brick-like than Hewlett Packard's HP1600CM.

On plain paper the Phaser's output is flat and mushy, but on coated paper it shows a dramatic improvement. The definition is better than that of the StyleWriter 2500 and the dot pattern is smoother too, while the colour rendition is streets ahead. Apple's new drivers incorporate ColorSync 2 in an attempt to create the best possible colour reproduction, but Tektronix just underlines the fact that other makers' proprietary systems are doing it better.

The Phaser 140's output on glossy paper takes a dramatic turn for the worse. While it's smooth and sharp, it's also horribly over-inked.

Interestingly, the Phaser comes with a disk of utilities, one of which is designed to prevent Mac programs like *QuarkXPress* overriding the screening values built into the printer. These screening values have been specially optimised, so the utilities help you to



The Phaser 140 is inexpensive for a PostScript printer, well made, and boasts good output.

make sure a lot of effort hasn't been wasted. This is a PostScript problem and is not one that applies to non-PostScript printers.

Compact and well made, the Phaser 140 beats the HP1600CM in every field except sheer speed.

TEKTRONIX PHASER 140

Price: £1,351. Out: now.
Contact: Aztec Associates on 0113 281 9225.

MACFORMAT RATING **88%**

FARGO PRIMERAPRO

The PrimeraPro is the one non-inkjet machine on test. Indeed it doesn't boast one printing technology, but two – thermal wax printing and dye-sublimation. Thermal wax printing is the more cheap and cheerful of the two but still offers good quality. It's useful when you need really solid and vibrant colours – a common weakness with inkjet technology.

Dye-sublimation printing produces an even more professional result than thermal wax. Uniquely, it varies the amount of dye transferred to the paper, offering you smooth colour transitions and photo-realistic quality. Standard inkjet printing relies on using the same-sized dots of ink with a pattern produced by an intelligent dithering system. Dye-sub technology isn't cheap – both the ink and the type of specialist paper you have to buy are expensive – and it isn't quick. But it is very good.

The PrimeraPro driver offers you a great deal of control over your printed

output, including different dither methods, light and darkness controls and a choice of colour-matching systems, including Gamma (user-definable), FargoColor (Fargo's own system) and ColorSync (the Mac's built-in colour-matching system). The ColorSync option also offers you further choices for fine-tuning your printer's colour reproduction.

Whatever the theoretical merits of thermal wax printing might be, they weren't much in evidence here. The contrast was good but all the colours were subdued, apparently containing too much black, and the dithering pattern was coarse.

The dye-sublimation output was another story. The output was quite simply breathtaking. Apart from a slight misty quality, the definition and smooth tones looked like those of a colour print from a photo lab. The results easily outstripped those of all the other machines tested; only the coated paper output of the Epson Stylus Pro came close.

Changing the colour correction systems produced some interesting variations. With no corrections applied, the test image was reproduced accurately



but too darkly. Using the ColorSync option produced the right lightness, with good greens but a magenta sky.

Using Fargo's own FargoColor system gives you both the right lightness and excellent colour reproduction – clearly the best output of the lot. The technology itself is expensive, and the media costs are crippling – but if you're a design professional, you could save yourself a fortune on conventional film and Cromalin test prints.

Cost is relative. The PrimeraPro is pricey compared to inkjets, but cheap for a professional colour proofing system.

FARGO PRIMERAPRO

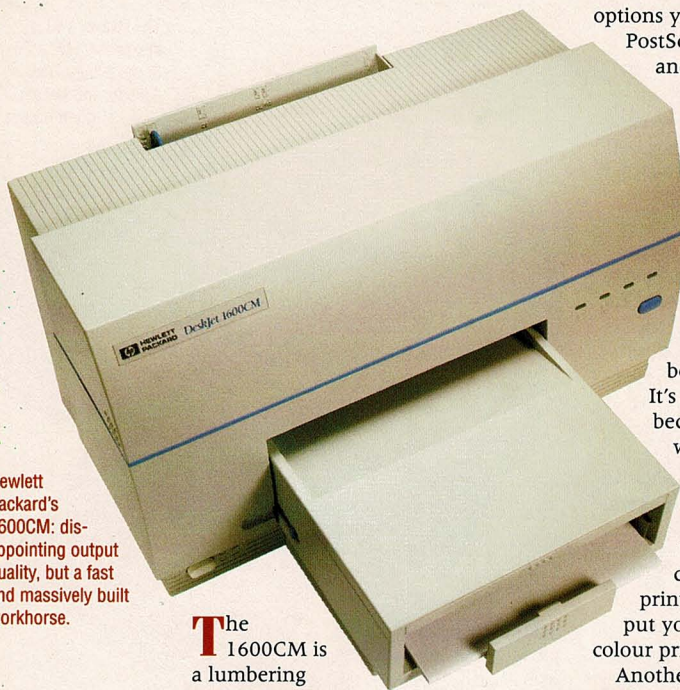
Price: £1,585. Out: now.
Contact: Bannerbridge on 01268 419101.

MACFORMAT RATING **84%**

Continued on next page

HEWLETT PACKARD 1600CM

Hewlett Packard's 1600CM: disappointing output quality, but a fast and massively built workhorse.



The 1600CM is a lumbering great heavyweight – the heaviest of all the printers on test. It has a metal chassis and shakes even sturdy tables while its print head moves to and fro.

Despite offering 300 dpi PostScript output, the 1600CM's driver has few

options you can define for yourself. A PostScript card is an optional extra and was fitted to our test model.

The only colour-matching provided is the automatic ColorSmart software, which is compatible with other proprietary colour management systems, although it's compatible in ways that aren't specified in the manual, mysteriously enough.

ColorSmart was also provided with the 850C and is both a good and a bad thing. It's good if you're a beginner because it leaves you nothing to worry about and works pretty well. It's bad if you're a design professional who needs to know exactly what the software is doing, so you can judge how well your

printer's output matches the output you'll get from a standard four-colour printing press.

Another problem you'll be used to if you're a design professional is the need to use a PostScript printer in the first place, to cope with the output of your professional design applications. Along with the Tektronix Phaser 140 – the other PostScript printer reviewed here – the 1600CM has its own

processor to rasterise PostScript output, whereas non-PostScript printers rely on your Mac to rasterise data. PostScript hardware isn't cheap, and the results from these tests aren't as good (300 dpi) as those produced from cheaper, non-PostScript machines (up to 720 dpi). You need PostScript to ensure accurate printing for professional DTP, because QuickDraw is just too crude for some of the fine nuances of text and graphics used in publishing. It's just a pity that this means you have to sacrifice quality.

The 1600CM's colour output was quite good but the definition was poor, regardless of paper type. In fact, it was the worst of the bunch, clearly beaten by the humble StyleWriter 1500.

Still, it's quite fast, capable of surviving a collision with a tank, and would prove a sturdy and long-lasting workhorse in your office.

HP 1600CM

Price: £1,986 (including PostScript card)

Out: now.

Contact: Hewlett Packard on 01344 369222.

MACFORMAT RATING 60%

'INTERPRETER'? SPEAK ENGLISH

Most of the printers reviewed in this round-up were non-PostScript models, but some non-PostScript printers can handle PostScript output by means of PostScript interpreters, which are either bundled with the machine or sold as add-ons. These software applications run on your Mac and are usually attached seamlessly to the printer driver, so they intercept the PostScript output from your applications

and interpret it into a form your printer will understand before passing it along.

Software PostScript interpreters are an inexpensive way of making your printer PostScript-compatible but they place an additional processing burden onto your Mac, markedly increasing print times. It's up to you whether the time penalty is worth the enhanced quality.

PC PRINTERS

All of the machines tested will connect directly to your Mac. However, many more printers are equipped only with a Centronics (PC) interface. You can get connection kits to make these printers work with your Mac, but make sure there is also a Mac version of the printer driver – otherwise you may not be able to make it work properly. Try the PowerPrint package (a smart serial-to-parallel cable plus drivers) at around £150 from Academy Software, 0181 656 9560.

WHICH PRINTER IS RIGHT FOR YOU?

This group test produced its fair share of surprises. One of the biggest was the price you'll pay in terms of output quality for PostScript-compatibility; but another surprise was how close an inkjet printer (the Epson Stylus Pro) could get to superior dye-sublimation quality (the Fargo PrimeraPro) using comparatively inexpensive printing technology.

Although all of the inkjets tested produced fair results on plain paper, coated paper produced a dramatic improvement. Colour inks are not cheap, and printing on poor-quality paper could prove a false economy. But if you move right up to glossy paper you could be making a mistake. It's vastly more expensive than coated paper (over £1 a sheet as opposed to around 10p), poses handling and storage problems and doesn't guarantee better quality in return for the hassle.

If the choice of papers seems too confusing, you'll find the options available in the print dialogues worse still. Effective colour printing involves complex dithering and half-toning techniques, a wide range of colour-compensation techniques, and other brain-fazing technicalities. Some firms hide all this complexity with a few limited (and limiting) choices; others let you have it with both barrels.

It was interesting too to note the size difference between machines that ostensibly do the same job. The StyleWriter 1500 produces excellent results which are every bit as good as the desk-breaking HP1600CM's – or better. Most obvious of all was that if you can avoid PostScript printing technology, do so. It costs more and most of the time it looks worse.

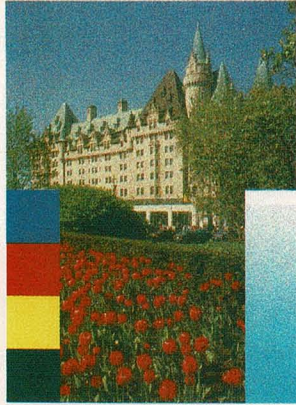
So which machine should you buy? For occasional colour printing

on a tight budget the StyleWriter 1500 is a little gem, while for better quality the 2500 is a very worthy replacement for the StyleWriter 2400. But for a quantum leap in output quality you should go for a medium-price model like the Stylus Pro or the Hewlett Packard HP850C. The printing engines produce much better quality and the proprietary colour management systems are (gasp, horror) better than Apple's.

But the ultimate in output quality, if you can afford it, is dye-sublimation output as provided by the Fargo PrimeraPro. Professional bureaux often use dye-sub for their last colour check before outputting film. Its running costs are inordinately high compared to inkjet printers, but if you're a design professional it's a lot cheaper than wasting time and film on conventional colour-checking.

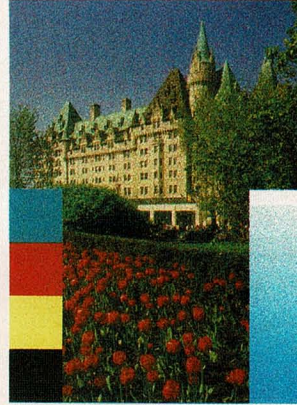
COLOUR PRINTERS: THE PROOF OF THE PUDDING

Apple StyleWriter 1500 12pt
Apple StyleWriter 1500 8pt
Apple StyleWriter 1500 6pt



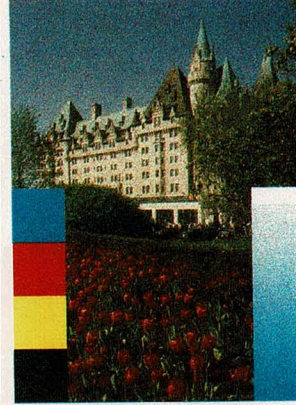
Although technically boasting a lower resolution than the other Apple printers, the StyleWriter 1500's output on plain paper was surprisingly good.

Apple StyleWriter 2400 12pt
Apple StyleWriter 2400 8pt
Apple StyleWriter 2400 6pt



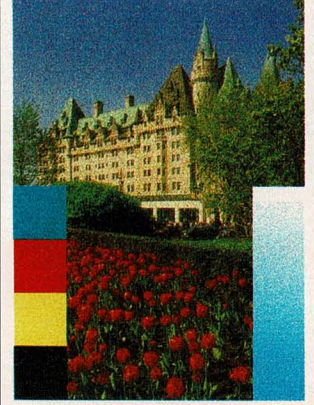
The StyleWriter 2400's images are gritty and suffer from poor colour rendition.

Apple StyleWriter 2500 12pt
Apple StyleWriter 2500 8pt
Apple StyleWriter 2500 6pt



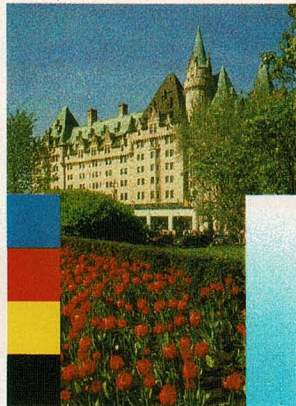
The StyleWriter 2500 is capable of producing good quality images on coated and glossy papers, but it doesn't quite finish in the first division.

Apple StyleWriter 2200 12pt
Apple StyleWriter 2200 8pt
Apple StyleWriter 2200 6pt



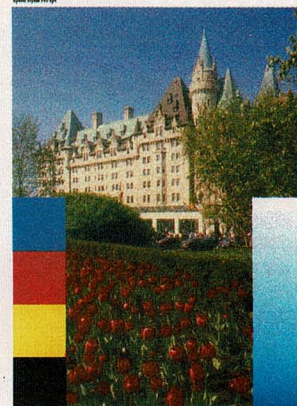
The StyleWriter 2200 suffered from the problems of translating RGB images into CMYK, particularly in the blue tones.

Hewlett Packard 850C 12pt
Hewlett Packard 850C 8pt
Hewlett Packard 850C 6pt



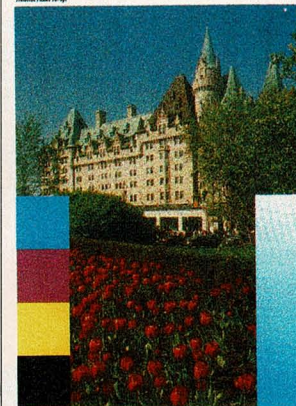
Some odd tinges of magenta in the sky clouded the horizon for the otherwise excellent Hewlett Packard 850C.

Epson Stylus Pro 12pt
Epson Stylus Pro 8pt
Epson Stylus Pro 6pt



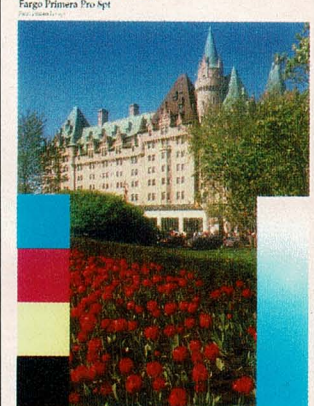
Producing stunning smoothness and resolution for inkjet technology, the Epson Stylus Pro suffered in the green shades.

Tektronix Phaser 140 12pt
Tektronix Phaser 140 8pt
Tektronix Phaser 140 6pt



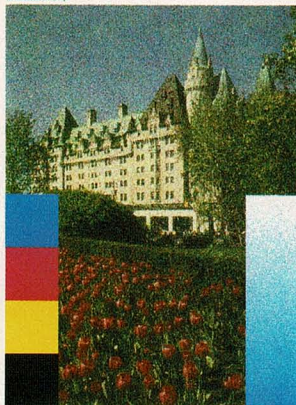
Coated paper was the preferred medium of the Phaser 140 as it showed a smooth dot pattern and impressive colour rendition.

Fargo Primera Pro 12pt
Fargo Primera Pro 8pt
Fargo Primera Pro 6pt



Fantastic dye-sub printing was offset by a less impressive thermal wax option where the Fargo PrimeraPro showed subdued, heavily dithered colours.

Hewlett Packard 1600CM 12pt
Hewlett Packard 1600CM 8pt
Hewlett Packard 1600CM 6pt



Expensive PostScript technology limited the output resolution of the Hewlett Packard 1600CM, which produced poorly-defined images.

SO TELL ME MORE ABOUT THIS TEST...

Our test document consisted of a high-resolution, photo-realistic TIFF image, together with solid cyan, magenta, yellow and black boxes, a graduated cyan-to-white tint and black serif type in 12-point, eight-point and four-point sizes.

This was designed to test several key printer features:

- How well does each machine deal with rendering solid blocks of colour? How well does a three-colour printer cope with reproducing blacks?
- How well does it render fine type? How sharp are the edges?
- How smooth is the gradation

from one tone to another?

- What level of general sharpness and colour fidelity is it capable of producing when dealing with photographic images?

Each inkjet machine (all of them except the PrimeraPro) was tested with three different paper stocks. Plain paper is the lowest quality for everyday use, while coated paper is a general-purpose compromise between cost and quality. Glossy paper promises to give you the highest quality.

The print times quoted overleaf are averages of the time

taken to print the image on to the three varied paper types.

There are so many variables in colour printing that it would have been impossible to try out all the conceivable permutations. In each case we chose a printing method matched to the image type, alongside the colour-matching method that gave the best results and the highest possible resolution.

Given the cost of colour printing and the fact that you probably won't be running off dozens of print-outs per day, we assumed quality was the most important factor.

Continued on next page

LOOKING GOOD ON PAPER?

The cost per sheet has been standardised across all the printers. Manufacturers quote cartridge life based on coverage – the area of the page covered by ink – of anywhere from 5% (ludicrous) to 30% (realistic). Our figures assume 30% coverage on coated paper. PPM: pages per minute.

Model	Resolution	Quoted PPM	Print test	Price	Cost per sheet	MF Rating	Contact
StyleWriter 1500	360 x 360	0.3	303sec	£276	£0.46	90%	Apple: 0800 127753
StyleWriter 2400	360 x 360	0.3	429sec	£350**	£0.46	68%	Apple: 0800 127753
StyleWriter 2500	720 x 360	0.7	309sec	£363	£0.46	84%	Apple: 0800 127753
StyleWriter 2200	360 x 360	0.3	290sec	£382	£1.70	78%	Apple: 0800 127753
HP850C	300*	2.0	1328sec*	£517	£0.44	92%	Hewlett Packard: 01344 369222
Epson Stylus Pro	720	1.5	354sec	£727	£0.44	90%	Epson: 01442 61144
Tektronix Phaser 140	360	1.0	334sec	£1351	£0.35 (30-40% coverage)***	88%	Aztec Associates: 0113 281 9225
Fargo PrimeraPro	300 x 600	0.1	626sec	£1585	£2.93 (100-page dye-sub kit)	84%	Bannerbridge: 01268 419101
HP1600CM	300	1.0	289sec	£1986	£0.44	60%	Hewlett Packard: 01344 369222

*Test conducted using Resolution Enhancement

** Now discontinued, so shop around for bargain prices

*** Individual ink 'colours' sold separately

SPEED TRAILS

Ignore that quoted page-per-minute speed of non-Postscript inkjet printers. Unless your printouts are ludicrously simple – a paragraph of text on an otherwise blank page, perhaps – your Mac will take far longer to rasterise (process) the data than the printer will take to wind the paper through. In our tests, the actual print times were remarkably similar for all the machines we tested, which just goes to bear this conclusion out.

The Epson Stylus II comes from the same stable as the highly-rated Stylus Pro. It's affordable and well worth checking out.

Space limitations prevented us from reviewing all the colour printers available, but here are three more models you might like to take a close look at.

The NEC SuperScript 3000 Color scored 88% when we reviewed it in MACFORMAT 35. It offers three colour printing methods. Like the Fargo PrimeraPro, it features thermal wax output and dye-sublimation, but it also offers an interim variable dot output. It's about half the price of the PrimeraPro at £764, and this includes a special connection kit to make it work with your Mac. Its printing times are much longer and the quality of the dye-sub output doesn't quite match the PrimeraPro's.

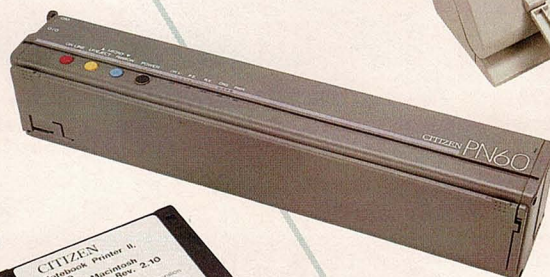
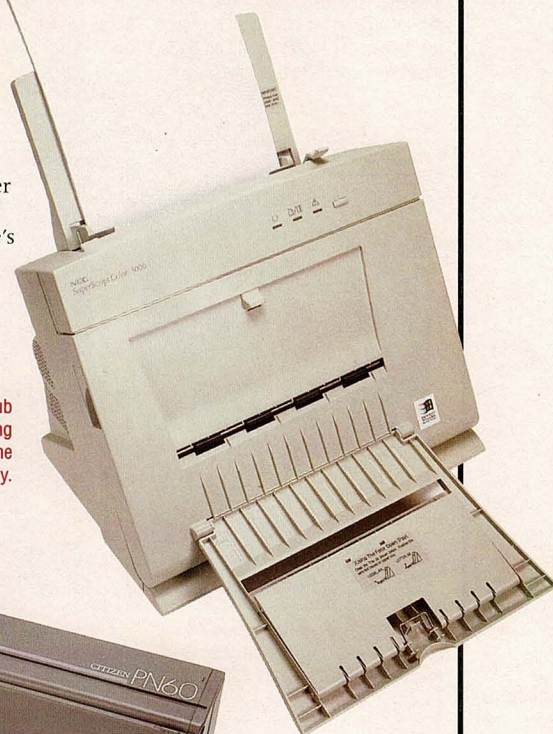
For those who need colour printing even more portable than the StyleWriter 2200 can offer, Citizen's PN60 (£340) could be the answer. No larger than a box of Clingfilm, it prints in both black-and-white and colour on A4 sheets. There are drawbacks though: there's no automatic sheet feeder (that would be a little too much to hope for), while print-outs of images show poor quality and the test full-colour photographic image looked like it would take at least an

ALTERNATIVES

hour to print (we gave up eventually). Nonetheless, the PN60 could be useful if you need coloured text output on the move.

The Epson Stylus II (£371) is the excellent Stylus Pro's smaller brother. It too features 720 dpi printing and the larger machine's effective automatic colour correction and *Microwave* resolution enhancement. Well worth a look at the right price.

The NEC SuperScript 3000 offers dye-sub printing at an affordable price, but long print times and reduced quality are the price you pay for the technology.



The Citizen PN60 is remarkably small, yet it prints in full-colour on A4 paper. You do face long print times, however, and poor quality with photographic images.

AT THE END OF THE DAY...

■ Top value

For casual home use, you can't do better than the new StyleWriter 1500. It's cheap, very compact, easy to use and performs well on plain paper.

■ Best quality

The Epson Stylus Pro offers astonishing quality for an inkjet printer. If you want the best possible output without having to go to the expense of dye-sublimation technology,

this is the machine to buy. Only the PrimeraPro performs better, and that relies on dye-sublimation.

■ Best colour

The HP850C is the second-best inkjet printer for smoothness, but for overall contrast and colour reproduction it's the best of the lot. And its output on plain paper is as good as most of the others can manage on coated stock, so it will save you money too.



Apple Mac

PERFORMA

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5300+ CDTV	16 1200 15"ms	£1749
5320 CDM	8 1200 15"ms	£1379
5320 CDTVmpeg	16 1200 15"ms	£1949
m=modem		
6200CD	8 800 base only	£709
6300CD	8 1200base only	£1025
6200CD	8 800 15"ms	£935
6200CD	8 800 14"ms	£895
6300CD	8 1200 15"ms	£1259
6300CD	8 1200 14"ms	£1219
6320CD	8 1200 15"ms	£1379
6320CD	8 1200 14"ms	£1339

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Power Mac base units are supplied with Apple mouse, and System 7.5

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7500/100 CD	8 500	£1630
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8500/120 CD	16 2000	£2775
8500/150 CD	16 2000 i2 cache	£3104
9500/132 CD	16 2000	£3195
9500/132 CD	16 2000 2Mb ATU	£3495
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POWER MACS BUNDLES

7200/75 8/500 + 1705 monitor	£1262
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190 8/500	8 500	£1105
190cs 4/500	8 500	£1229
190cs 8/500	8 500	£1435

POWERPC POWERBOOKS

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5300cs 8/500	8 500	£1739
5300cs 16/750	16 750	£2189
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Apple Authorised Reseller



Apple Mac

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APPLE CD-ROM

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APPLE Xtras

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Apple MIDI interface	£41



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DeskJet 1600CM Postscript	£1218

EPSON

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Stylus Pro Postscript Software	£199



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LaserWriter Select 360 7Mb	£939
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Colour LaserWriter 12/600 PS	£4509

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LaserJet 4MV Pscript A3	£2039



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For Other Peripherals Please Call



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Vista S12 Plus	£675
Vista S12 Pro	£999
PowerLook II Pro	£1999
Mirage Pro (A3)	£5999

LE = Photoshop LE
Plus = Photoshop Full
Pro = Photoshop Full + Transparency

Umax Transparency	£375
Umax Document (50 sheet)	£399

AGFA

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StudioScan II SI Adobe PhotoShop 3.0	£599
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Includes all, cables & software required

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● Xerox TextBridge OCR	
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GTX9000 Apple Mac	£572

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HEWLETT PACKARD

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MOTOROLA

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PowerPort Platinum	£295
PowerPort Gold PCMCIA	£130
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APPLE

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miroMotion DC20

Digital editing and post-production effects are the holy grail of the video industry. Marcus Dyson looks at a card promising to bring pro quality to your PCI PowerMac.

FIRST CLASS

A demo of Adobe *Premiere* was featured on the Cover CD-ROM of *MACFORMAT* 21, where the program scored a Classic award-winning 90%.

Full motion video, or FMV, has been a buzzword in the computer and console market for a few years now. And although a lot of people have heard it, almost no-one knows precisely what it means. Multimedia developers frequently use the term to describe anything from 10fps (frame per second) QuickTime movies right through to full-screen MPEG movies.

A new card from French firm miro aims to bring FMV to your PowerMac, enabling you to edit top-notch digital video at the lowest cost anyone's so far managed to offer. Before we see how miro's done with the miroMotion DC20, let's get an idea of the challenge the firm faces.

What FMV basically means is full-screen, full-colour images moving

quickly enough to be visually acceptable. That sounds simple enough, but remember: a TV or video displays 25 images a

second, and those images are 768 x 576 pixels in size. You begin to get the idea of how much data must be stored, and how quickly it must be moved around, for a computer to get real time FMV. If you can't do the maths, 25 images with the standard 32,768 colours at full-screen size adds up to almost 22Mb per second.

Feed me...

So for your computer to throw around a PAL video image, either it needs a very fast hard drive and huge amounts of RAM and hard drive space, or it needs to compress the video signal very efficiently so it takes up much less room. Systems with phenomenal amounts of RAM and immense hard drives exist, but as they're extremely expensive they are only used by the largest video production companies. For your Mac to handle digital video, you must take the compression route.

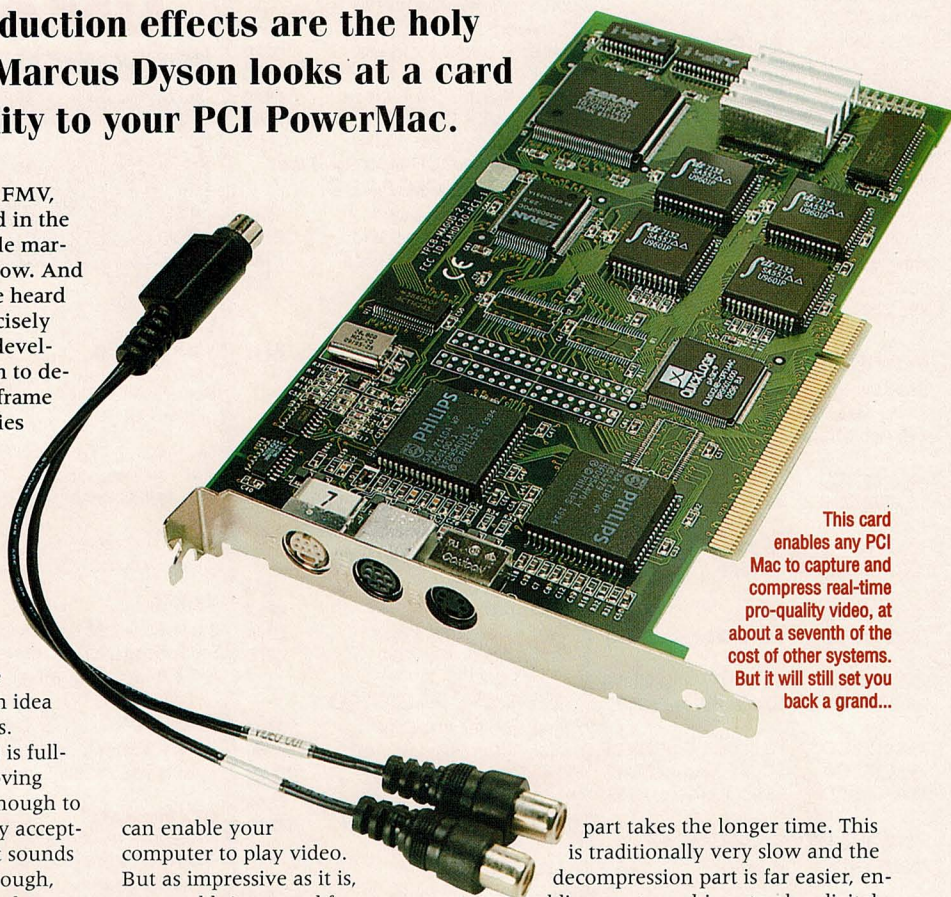
Apple's own QuickTime system is an example of how video compression

can enable your computer to play video. But as impressive as it is, you couldn't pretend for a second that QuickTime approached the quality of even the cheapest video recorder. The reasons for this are simple. First, because of the size of video files (even well-compressed ones) they are most often stored on CD-ROM, and until recently CD-ROMs were limited to a maximum data transfer rate of about 225K per second. This limited the quality of the videos that could be produced.

The second, more important reason is that all this compressing and decompressing of video takes a huge amount of maths. The CoDec algorithms that do this are written so the compressing

part takes the longer time. This is traditionally very slow and the decompression part is far easier, enabling most machines to play digital video of sorts – although few can actually produce it.

Another important digital video concept is real time. This means you can attach your video player or camcorder to a computer, which can digitise and compress the signal as you play it at 25 frames per second. Even though a PowerMac can handle the maths involved, it can't do it quickly enough to keep up with a 25fps video stream. If you want to use a Mac for broadcast-quality digital video editing, you need an expensive video that can play a frame at a time, waiting for your Mac to finish compressing one



This card enables any PCI Mac to capture and compress real-time pro-quality video, at about a seventh of the cost of other systems. But it will still set you back a grand...

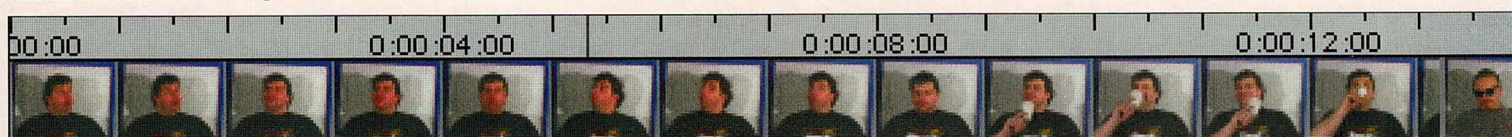


The miroMotion card is controlled entirely with this Control Strip tool. There's very little to it really: just select which video format you want (PAL or NTSC) and where you want the output displayed.

To get true video-play-back quality, you have to use the DC20 card's video outputs and an extra, external video monitor. This is all you'll see on your conventional Mac screen.



The 25-frames-per-second speed of the miroMotion card makes it ideal for recording action scenes.



frame before it moves to the next one. Not an ideal solution...

Which brings us neatly to the miroMotion DC20 card.

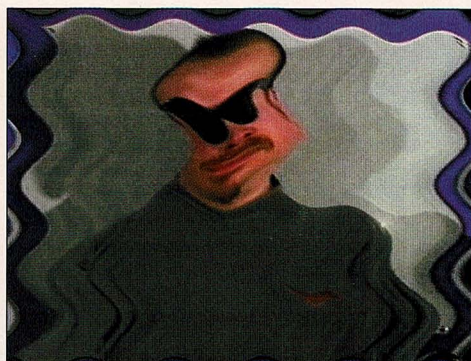
It's showtime

The card offers a solution to the problems of digital video compression in real time by placing dedicated hardware on a PCI card. It enables any PCI-equipped PowerMac (see News this issue for the current range) to capture and compress real-time, pro-quality video. The compression is handled by a dedicated processor which does little other than make the calculations required to compress the video stream. These are based on the M-JPEG video system, which is not to be confused with rival system MPEG.

So much for the theory; does the card actually work? Well, yes and no. The DC20 card certainly enables you to capture broadcast-quality video on your PowerMac, then output it back to video tape after you've edited and manipulated it. And that's all it does.

It's fair to say that this is all it does, and for under £1,000 that's pretty good value to boot. A professional video set-up capable of doing the same thing would require a video camera, two video players and one recorder, three monitors and a special effects unit. All that would cost the best part of £7,000. But don't forget you'll need the camera, the video recorder and a monitor with the DC20 – alongside about £3,500 worth of Mac too!

Once it's installed, the miroMotion card is (almost) invisible to the user. The card comes with the latest version of *Adobe Premiere* and software drivers which make the DC20 accessible to you through any QuickTime editing



package. *Premiere* is an accomplished package and it has pretty much become an industry standard for anyone working with digital video on the Mac. But it isn't particularly user friendly or fast to work with. Because the DC20's drivers are the same as QuickTime CoDecs as far as your Mac video software is concerned, you can instead choose to use either *Avid VideoShop*, which is free with most new PowerMacs, or the shareware video-editing package *QuickEditor*.

You can now add to your pro-quality video any fades, wipes and digital special effects these packages enable you to apply to QuickTime video. Obviously, you can't do this in real time, and the additional

size and quality of the video frames means that the processing of effects will take considerably longer than when you're working on a 320 x 240 QuickTime image.

The one thing which lets the card down is not the fault of miro, but rather a technical limitation of how the Mac handles screen video. To see the video image played smoothly at 25 frames per second, you must attach an additional video monitor to your machine. You can do this either directly

or with a video in between the two, ready to record your results. The card has one S-Video and one composite input, and one output of each kind.

So if you were hoping to get full motion video on your Mac screen, this card isn't designed to be the solution. (Apple has said however that in a future version of QuickTime it will be offering software MPEG for PowerMacs running at 100MHz or more, which will include PCI PowerMacs from the 7500 upwards.)

That said, the miroMotion card is a desirable thing to own: it represents an extremely competitive way for you to go digital if you're a serious amateur or semi-professional videographer. It makes full-screen, real-time video capture and compression available at roughly one seventh of the cost of previous systems. For professional use it really needs software worthy of the hardware, plus on-monitor, real-time playback before you part with your cash. Until then, for the pro, there are (much) more expensive systems like *Avid's*, which does this kind of thing much better.

One of the most exciting aspects of digital video editing is the way it enables you to add image processing effects like these to an image. Some of these techniques are not possible using conventional video techniques; others require the addition of an expensive effects processor. Depending on the software you use with the miroMotion card, you can apply almost an infinite variety of effects, including wipes and fades, to your video sequence before recording it onto tape.

The card enables any PCI PowerMac to capture and compress pro-quality video.

JARGON BUSTERS

- **CoDec** – Compression/Decompression. The mathematical algorithm used by a digital video system to compress images.
- **M-JPEG** – Motion JPEG. A derivative of the JPEG (Joint Photographic Experts Group) video compression algorithm, it streams full motion video by rapidly decompressing a series of still images. You need to install extra hardware in your Mac before you can play M-JPEG video.
- **MPEG** – Motion Picture Experts Group. A panel of experts formed to standardize a format for movie

- compression files. The term MPEG is generally used to refer to the MPEG1 compression algorithm, which enables full motion video to be played from a single speed CD-ROM. Macs need extra cards to run MPEG at the moment, but Apple's working on it.
- **NTSC** – National Television Standards Committee. The TV system used in the US, giving 30 frames of 640 x 480 pixels per second.
- **PAL** – Phase Alternate Line. The TV broadcast system used in the UK and Europe. PAL gives 25 frames of 768 x 576 pixels per second.

MIROMOTION DC20

Price: £999. **Out:** now.
Requires: PCI PowerMac, 16Mb of RAM (more preferred), 125Mb of free disk space, System 7.5.2 or later.
Contact: miro UK on 01494 510250.

FEATURES 70%
Nothing in this price range does what it does, but it doesn't do very much.

EASE OF USE 90%
Couldn't be easier. Stick the card in, install the software, and off you go.

DOCUMENTATION 87%
A clear and concise manual with screenshots. Excellent.

VALUE FOR MONEY 78%
You've really got to want to use your Mac for broadcast-quality digital video editing to make this worth a grand.

MACFORMAT RATING 81%

HOME VIDEO

You don't have to own equipment this powerful to start learning about digital video. *QuickEditor* is a shareware video program that enables you to alter QuickTime movies on almost any colour Mac with 4Mb of RAM.

ABSOLUTE BEGINNERS

You can try out *QuickEditor* for yourself if you have a CD-ROM copy of *MACFORMAT 30*. There's a step-by-step guide on page 10 of that issue.

MicroNet Jaz Drive

It's finally here! The eagerly awaited Jaz drive has arrived on the market. But will it be able to actually supersede its predecessor, the hugely successful Zip?

WIN
a Jaz Drive
courtesy of
MicroNet – see
page 110

The Jaz Drive is Iomega's long awaited sequel to the Zip drive, a mass storage removable drive using 3.5-inch cartridges little bigger than floppy disks. Strangely enough, Iomega has yet to release its own external version of the drive, but has instead licensed the technology to well known drive manufacturer MicroNet. Iomega makes the actual drives, but MicroNet puts them in a case and supplies the software and connection cables.

The Jaz Drive is a 3.5-inch unit which takes removable cartridges, each capable of holding 1Gb of data. It's based on the same technology as the Zip Drive, but uses two platters inside the cartridge rather than the Zip drive's one. Before you ask: no, Zip and Jaz cartridges are not compatible, so you can't use Jaz cartridges with your Zip Drive or vice versa. Because of the double platter arrangement, Jaz cartridges are about a quarter of an inch thick – twice the thickness of the Zip cartridges and more comparable to a standard 88Mb SyQuest cart – and they hold much more data.

Like all MicroNet's drives, the Jaz comes in a stylish and sturdy steel casing which looks like it's capable of withstanding hammerblows (this is not a suggestion), but it is remarkably compact and reasonably light. Unlike Iomega's Zip drive, MicroNet's Jaz has its own built-in power supply, which negates the need for a power adaptor that plugs into the mains socket. An eject button is the only control on the front, accompanied by a disk access indicator. The back of the drive is much like any other: two 50-pin SCSI connectors for daisy chaining devices,

a SCSI ID switch, a power-on button and a mains socket. However, the steel casing gives you a reassuringly smug feeling that you've spent your money wisely – this is a well designed unit. The drive comes with a manual, one pre-formatted cart, SCSI cable, terminator, and *The MicroNet Utility*, a formatting and back-up program which will work with almost any drive, not just the Jaz. The drive also comes with a one year guarantee.

Connecting the drive to your Mac is easy: all you need to do is copy the utility program from the supplied floppy disk to your hard disk, shut down your Mac and connect the drive to the SCSI port on the back of your Mac – making sure it has a suitable SCSI ID number. Once you've restarted, you use the utility to mount the Jaz cartridge on the Desktop and there are no Extensions involved.

Once it's up and running, the Jaz is unbelievably quick and surprisingly quiet – not much louder than the average hard disk. Using *Norton System Info* on a PowerMac 7200, we tested the drive's overall performance with a range of read and write tests measured against the Mac's internal hard drive. Incredibly the Jaz drive was actually faster overall, pipping the hard disk to the post by 1%. This drive smashes the preconception that removables are always slow.

The only tiny dark cloud on the Jaz drive's horizon is the way the cartridge slides into the drive. It lacks the reassuring clicking action which tells you the cart is firmly in place and ready to use. The first thing you know about its readiness is when the disk light comes on and the disk spins up. It would have been better if perhaps the cart dropped a little as you pushed it, so you could be sure it's safely in place before trying to use it.



If you are looking for a big, fast removable, this has to be your first port of call. The Jaz Drive is undeniably impressive and comparatively cheap for the amount of storage you get.

Overall, this has to be one of the most impressive drives so far reviewed by MACFORMAT. It's very fast; it stores one-and-a-half times as much data as a CD-ROM; it's a portable medium; and it's dirt cheap. What more could you possibly ask?

LINDSAY BRUCE

OTHER OPTIONS

If you'd like to know what other storage options are on offer, take a look at our storage round-up in MACFORMAT 34. Details of how to order the issue are on page 117.

DRIVE SPEEDS

Drive	Speed rating (%)
MicroNet Jaz Drive	101
PowerMac 7200 (500Mb)	100
Iomega Zip Drive	26

Test results were gathered using *Norton System Info*. The benchmark for the test was the PowerMac 7200's internal 500Mb hard disk and this receives an arbitrary rating of 100%. Other results are expressed as a percentage of how fast or slow they were in comparison to the 7200's hard disk – the higher the figure, the faster the drive.

MICRONET JAZ DRIVE

Price: £586 including one cartridge; additional cartridges £116. **Out:** now.

Requires: any Mac, 1Mb of RAM, System 6 or later.

Contact: MicroNet on 01926 470460.

FEATURES

Very fast mass storage drive in a case which could withstand a nuclear impact at ground zero.

94%

EASE OF USE

Easy to connect, but the driver utility could do with an interface make-over, and a positive locking action when you insert the cart would be reassuring.

81%

DOCUMENTATION

Comprehensive manual on the driver software and how to connect the drive to your Mac.

89%

VALUE FOR MONEY

Okay, it's nearly £600, but once you've bought a few 1Gb carts you'll get your money back ten-fold. An incredible price given the specifications.

93%

MACFORMAT RATING 94%

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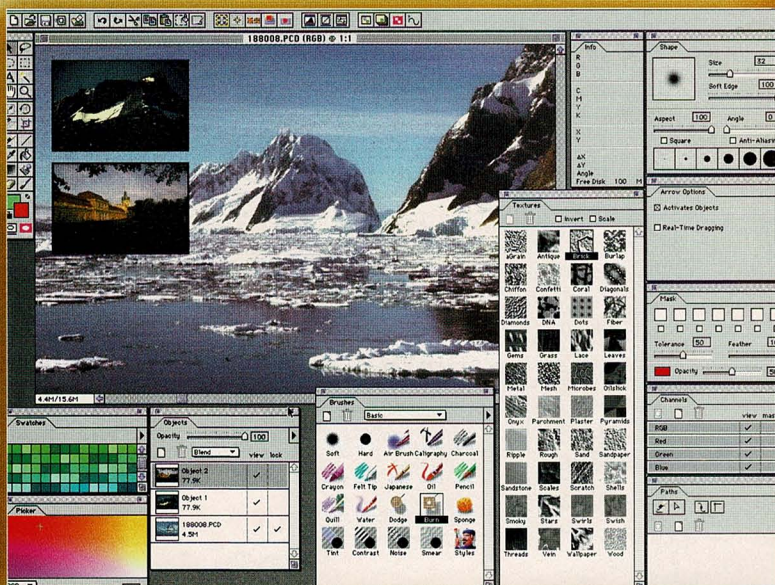
WE SIMPLY CAN'T BE BEATEN!

Live Picture vs xRes

The heavyweight title fight

When your images get too big for your RAM, call in the image-editing heavyweights. Marcus Dyson watches as the latest versions of *xRes* and *Live Picture* slug it out.

The *xRes* Interface is extremely similar to *Photoshop's* – right down to the palette windows, which you can drag-and-drop in and out of each other to create separate palettes. All it lacks is *Photoshop's* Snap-to Align, the command that makes the windows sit tidily on screen. It's a neat feature that too few developers have adopted.



You'll have seen *xRes* reviewed in *MACFORMAT* before: in issue 23 we described it as a promising program that felt unfinished. You won't have seen *Live Picture* reviewed here at all, mainly because of its price: at £3,500, it was a trifle expensive even for the most enthusiastic (not to mention loaded) *MACFORMAT* reader. Now the famous multimedia software company Macromedia has purchased *xRes* and given it an unparalleled finishing treatment, and *Live Picture* has reduced the price of the new version of its eponymous product down to the more affordable, not to mention competitive, level of around £930.

When reviewing packages of this type, it's the done thing to compare them constantly with *Adobe Photoshop*.

In the case of these programs, the temptation should be avoided. If you're a designer, either of these packages would be a logical addition to *Photoshop* on your shelf. In fact *Live Picture* even ships with a plug-in that equips *Photoshop* users with the ability to import and export the necessary *Live Picture* IVUE files.

Both programs enable you to do things that are simply beyond the reach of *Photoshop*. But these processes – compositing and manipulating huge image files – are not the type of thing you are ever likely to want or need to do at home. Still, as Peugeot keeps telling us, there's no such thing as an average person... so let's see if *xRes* or *Live Picture* has anything with which to tempt you, the decidedly non-average *MACFORMAT* reader...

xRES HISTORY

xRes was developed by Fauve Software, which was bought up last year by Macromedia, the owner of *FreeHand* and *Director*. The new owner is slotting *xRes* into its complete range of multimedia and Net creation tools.

THOSE ODD FILE FORMATS

■ **LRG** – LRG files are used by *xRes* to store the data it is working on. LRG files are not edited. Changes to the file are stored separately in another file – the MMI file – until you render the completed image for output. At this time the two files are combined and the finished image is saved in a conventional image file format, for

instance PICT, JPEG or TIFF.

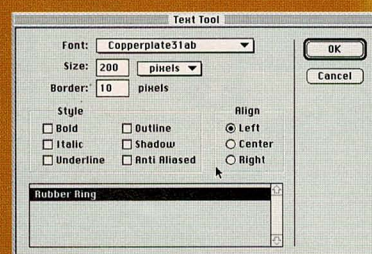
■ **MMI** – The file in which *xRes* stores changes. These will eventually be rendered to data stored in the LRG file to create the final image.

■ **IVUE** – *Live Picture's* equivalent of the LRG file with your original data.

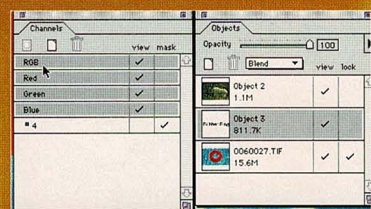
■ **FITS** – *Live Picture's* version of the MMI file that records your changes.



Because each object in *xRes* carries its own alpha channel, you can apply interesting and creative effects to text and rub pictures through to merge partially with an underlying image.



The type requester in *xRes* is far more powerful than that of *Live Picture* because it gives you the option of left, centre or right alignment. It's a shame it lacks any sort of font preview.



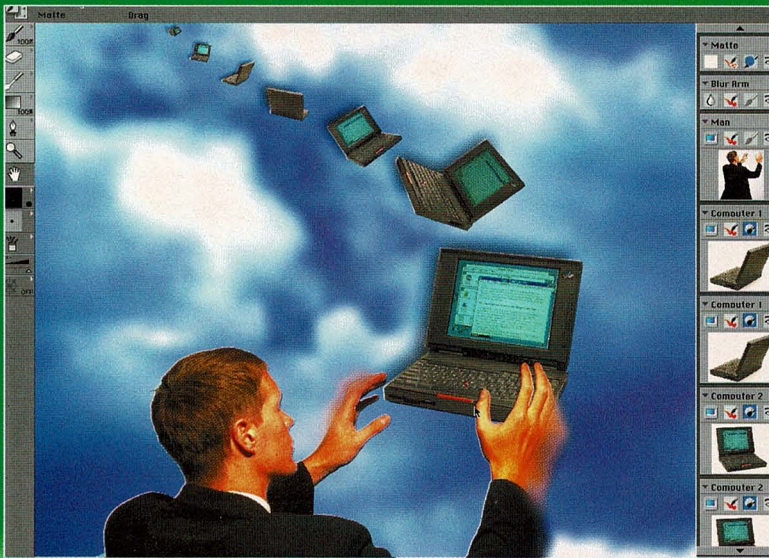
The *Objects* palette in *xRes* fulfils the same role as the *Layers* palette in *Photoshop*. But objects remain discreet in *xRes*, and you don't need to flatten them until you've finished your work and the image is exported into a bitmap format.

Opening and saving images

Because *Live Picture* requires a file to be in IVUE format before it can be used, files must be in either IVUE (source file) or FITS (working file) format before they can be opened. *Live Picture* comes with tools for you to convert images into the correct format, but having to do this makes the process unnecessarily complicated.

xRes requires images to be in its LRG format for use in *xRes* mode, but it is capable of opening all common image formats and many others, converting them to LRG on the fly.

xRes images must be exported before you can use them in other packages. This causes all their individual objects to be flattened together and the alpha channels to be lost. While you're working on *xRes* images, you can save



them as MMI-format files, preserving all of their objects and channels.

The upshot of all this is that the rendering and exporting of images into useable file formats is something that takes a considerable period of time, whichever program you use.

Undo

Since its earliest versions, *xRes* has provided users with a multiple undo facility – often a life-saver, but the problem with undo's is they are expensive in terms of memory. While *xRes* supports up to 20 levels of undo on local operations, including cloning, painting and applying filters and colour corrections, it only gives you one level of undo on global operations such as re-sizing, rotating, flipping, cropping and moving.

This is not the problem it may seem: *xRes* retains items as discreet objects, so they can be repositioned as many times as you require. You will however need a large amount of free hard drive space to make use of *xRes*'s multiple undo feature. A single level of undo requires that you have swap disk space to the tune of six times the size of your image available. Using five levels of undo raises this to 12 times the image size, and 20 levels of undo takes it through the roof to 34 times the image size. To put that in real

terms, to get 20 levels of undo on a 10Mb image you'd need a swap disk with 340Mb of free space.

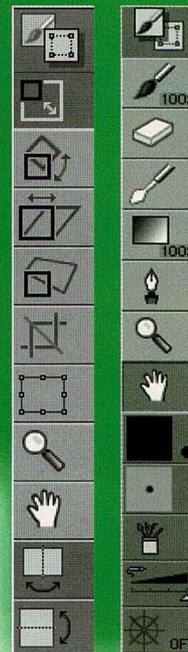
Live Picture on the other hand offers only two levels of undo: a simple undo, and a complete undo to opening of the current layer. You will find this neither as powerful, nor as flexible, as the *xRes* facility.

Layers, channels and masks

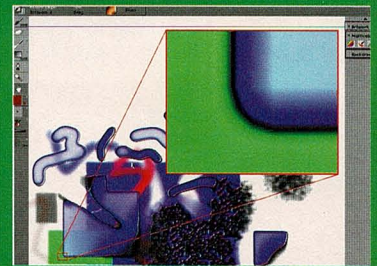
While Layers are a relatively new addition to *Photoshop*, they are fundamental to the way *Live Picture* works. You might find *Live Picture* both extremely powerful and slightly unintuitive in use because of this. Both *Photoshop* and *xRes* have borrowed heavily from *Live Picture*'s layer-based approach, but have simplified the process considerably. However, layer manipulation is still the most confusing aspect of both these packages.

Live Picture uses a total 11 types of layer sorted into four categories (Paint, Image, Effects and Colour Correction). It is from this approach that *Live Picture* derives much of its power, but it's also the feature that leads to its complexity.

Live Picture is essentially an image composition program. While it is also capable of image processing and manipulation, it's in the production of composite or collage images like this that it really excels.



Live Picture toggles between two tool panels depending on which mode you've selected. **Creative** mode enables you to paint, create selections and paths, erase work and create gradient fills. With **Positioning** mode, you can scale, move, skew and perspective objects. **Zoom** and **Pan**, which enable you to change the view in the object window using the hand tool, are common to both panels.



Live Picture's resolution independence means that anything done with the creative tools, including painting or blurring, will remain sharp no matter how much you magnify the image. The resolution of the file is determined when you decide to save the final result.

Consider this: an image imported as a picture element into a *Live Picture* composite has to be converted to IVUE format. This is fairly straightforward but, once it's imported, this image is broken up into a layer made up of the image, a mask that determines which parts of the image are visible, and a stencil that determines which parts of the visible portion of the image are concealed. It's not as complicated as it

sounds, but it's not what you'd call clear-cut either.

xRes's object-based approach makes the concept of layers redundant. Each object is effectively in a layer of its own.

But the fact that you can manipulate each channel of each object individually, using graphics tools based on Boolean operators, enables you to create effects and textures on a per-object basis. This flexibility is one of the keys to *xRes*'s creative power.

LIVE LITE

Live Picture is busy creating a 'home' version of its flagship program. Codenamed *Shasta*, it should go on sale later this year. Watch *MACFORMAT* for more details as they become available.

Macromedia has bought xRes and given it an unparalleled finishing treatment

WHAT MAKES LIVE PICTURE AND XRES SO DIFFERENT?

If *Photoshop* is as good as we say it is (90% and a Classic award in *MACFORMAT* 22), why would you need any other product – especially since *Photoshop* is regularly bundled with scanners and sold at a large discount? To answer that, you have to look at what makes these two packages fundamentally different from *Photoshop*.

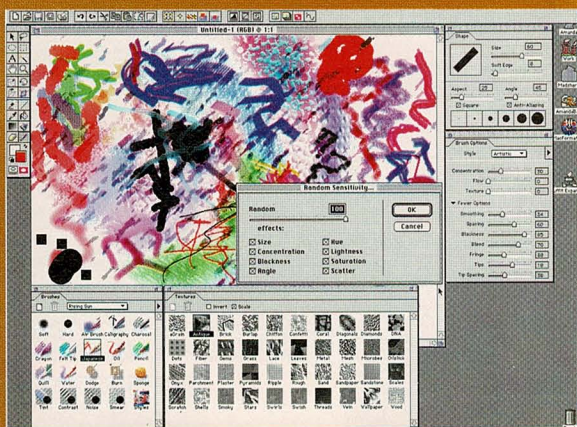
Photoshop needs lots of RAM – a pretty good rule of thumb is 14Mb plus twice the size of the image you are editing. So to edit a 5Mb image reliably and quickly in *Photoshop*, you'll need around 24Mb – and even more if you're

using layers. Any less than this and you'll experience painful slow-down at best, and at worst occasional lock-ups. The reason for this is that *Photoshop* keeps all the image data you are working on in memory at once, while also reserving a second area of RAM called an Undo Buffer so you can reverse any poor decisions you might make.

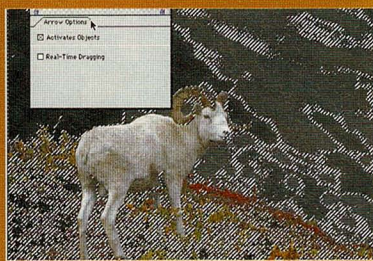
Live Picture and *xRes* work in a different way entirely. Instead of having the whole image in RAM at all times, they just load the information needed to display what's on your screen at any given moment. Each program converts

the image file into its own proprietary format (LRG for *xRes* and IVUE for *Live Picture*). Instead of working on all the image at once in real time, the changes you make to the image are stored in a special file, which is later combined with the original image when you render a final picture. This in turn can be saved out in any one of the more common image formats. Working this way means that you can use these programs to handle files many times the size of those your Mac could deal with if it was running software like *Photoshop*, *Color It!* or *PhotoFix*.

Continued on next page



The control *xRes* gives you over brush shapes and styles has to be seen to be believed. Coupled with the selection of brush styles already available, this makes *xRes* an extremely powerful painting tool. You can also combine brush characteristics with paper textures to create even more effects.



xRes does seem to have a problem with the speed and manner in which it draws marquees. When an image requires a very complex selection – like this one – the program can lock up for as long as 20 seconds at a time while it's selected. Macromedia needs to do something about this bug quickly.

Text

Photoshop's weakness in the area of text formatting and handling leaves an obvious gap for its competitors to fill. While you might expect Quark's long-awaited *XPosure* (catch a glimpse in News, MACFORMAT 33) to rise to this challenge given the company's experience with *XPress*, it is currently a gap that remains to be filled. Neither *xRes* nor *Live Picture* excels in its handling of text, though both programs have unusual new ways of enabling you to put letters into your pictures.

Live Picture simply treats text as paths. The text tool is hidden away at the end of the **Paths** menu, and once you select it a fairly standard text requester is displayed. This dialogue box is even more basic than the one

available in *Photoshop*, lacking any kind of alignment controls.

After you type in your desired text, the program extracts the outline information from the font and converts it into *Live Picture* paths. This takes a while. Once you have added the paths to the document layer, you can select points and move them, enabling you to manipulate the text in ways that are simply not possible using other image editors. The overall approach is limited and is especially unsuitable for more than a few words of

text, but if you're adding headlines and titles to pictures, you'll find this approach flexible and powerful. You can use the paths as a mask when applying effects to your image, or simply as a container to be filled with solid colour.

xRes uses text in a much more traditional manner: you create your text in a standard requester that is extremely similar to its *Photoshop* counterpart. The difference between *xRes* and *Live Picture* is that the text – like any other element of an *xRes* image – remains as a discreet object, rather like a floating selection in *Photoshop*. Perfect for a situation where you might want to move text around your image some time after its initial creation, this object-oriented approach to text is also ideal when you want to create special effects such as drop shadows.

Painting

xRes is the clear winner in this category. It has all the tools you could ever want, both for straightforward computer painting and for retouching scanned images.

xRes provides you with excellent paintbrush control, and there is a full range of natural-media effects including charcoal, felt-tip pen and water-colour built into the package. You can control the texture of the surface that your brush is painting on, and the custom brush options are the most advanced I have used.

Live Picture's painting capabilities are much more straightforward. While it does have all the painting features you

RAM BAM!

There's just no substitute for RAM. Programs like *xRes* and *Live Picture* will enable you to load and edit pictures far larger than the amount of RAM you have available, but they still require a well RAMmed-up machine before they'll run. You might get away with 20Mb for *xRes*, and 24Mb for *Live Picture*, but 32Mb for each is more realistic if you want to run the program properly.

Both packages are excellent at enabling you to view and manipulate

very large images very quickly. But when it comes to rendering or processing the final image, the more RAM you have available, the faster they will do their job.

If you are editing smaller images – up to 10Mb or so – there is no substitute for *Photoshop*. But once your image sizes start to creep toward the 20 or 30Mb size, you'll need a package like *xRes* or *Live Picture* – unless you can actually afford hundreds of megabytes of RAM, of course!

would expect from a professional quality image manipulation package, once again these are rendered less easy to use because of the way in which the program works. A particularly nice area of *Live Picture's* painting feature is its resolution independence, where the size of brush you use is relative to the scale of magnification on your screen. So if you zoom in very close the brush acts on a small area of the image, but if you zoom out it acts on a much larger area – similar to the

way the block eraser works in *Photoshop*. *Live Picture* is also very adept when it comes to tasks like brushing an image into a composite, but it provides little in

the way of brush control. Rather than being a true creative tool, it's more akin to a retoucher's airbrush.

Compositing

The object-based methods *xRes* uses make it far superior to *Photoshop* in the field of image compositing – collaging and combining several images to make one new image. But while *xRes* takes the honours in the painting section, compositing is where *Live Picture* really comes into its own.

As we've said, *Live Picture* has a series of layers; of these, the Image layers are designed specifically for the compositing and manipulation of images. The fact that each image layer carries its own mask and stencil makes *Live Picture* extremely powerful when you combine images creatively. Add to this the ease with which you can make your paths into masks or stencils, and what you have is very flexible piece of software.

xRes is a capable performer in the compositing stakes and while it may not be as powerful as *Live Picture*, it makes up in simplicity what it lacks in flexibility. Each part of an image can be created or imported as a separate object and remains that way until you wish to flatten the image for output. Each object has its own individual alpha channel, so you can add transparency after the item has been added

ALPHA WHAT?

An image's alpha channel is a set of data used by many image processing programs in addition to the red, green and blue channels you'll see when you display an image. It is usually an 8-bit channel containing 256 shades of black, although you don't actually see these shades in your image. The alpha channel is used to define how much a given effect alters different areas of an image.

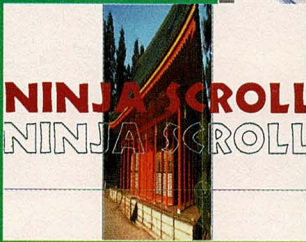
The parts of the image which are pure white in the alpha channel are affected 100% by any effect you apply, while areas that are completely black are not affected at all. Areas shaded in between these extremes are affected in direct proportion to their shade in the alpha channel.

Alpha channels are typically used for complicated masking effects, creating partial transparency and other similar advanced image manipulation techniques.

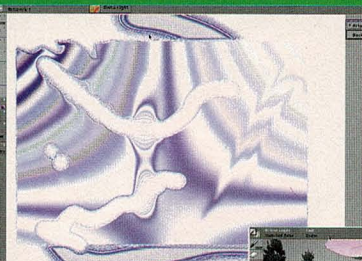
XRES FOR LESS

xRes is also part of the current *FreeHand Graphics Studio*, a cut-price collection also including *Extreme 3D*, *Fontographer* and *FreeHand* itself. Contact Macromedia's distributor Computers Unlimited on 0181 200 8282 for more details.

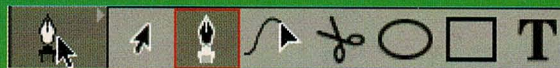
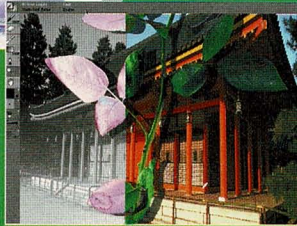
Live Picture textures work in a distinctive manner, enabling you to create effects that are unavailable in other packages. Textures in an *Artwork* layer remain live, so if you select another layer from the menu or change its colour, the texture changes too.



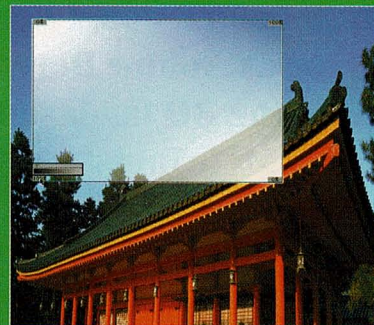
You can use the text path as a stencil or mask for the application of paint or image processing effects.



Different layers of *Live Picture* documents carry their own interface with them. The information displayed above the picture and the effects of the tools on the left of the image area change depending on which layer is selected. The *Live Picture* interface initially feels particularly strange because it lacks the scroll bar you would usually use to navigate around each document.



The **Text** tool in *Live Picture* is part of the **Paths** tool. When text is used, it is produced as a path and, so you can easily create fills and effects in the text shape. You can also transform it to create new and creative text effects.



One particularly powerful feature of *Live Picture* is the **Gradient** tool. Not only can it produce horizontal and vertical gradients, but it can also create four-point gradients like this. On **Paint** layers these add the current paint colour, while on **Artwork** layers they add the current pattern. On **Image** layers they determine the transparency of the current image.

to the picture. Both programs completely overshadow *Photoshop* with their compositing power.

Image processing

Both packages perform the all basic image processing functions that you would expect, but they also accept *Photoshop* image format plug-ins. These extend the range of file formats the programs can support and enable them to be used with scanners. The programs also work with *Photoshop* filter plug-ins; because of the huge number of commercial and shareware plug-ins available, this means you have access to a huge armoury of image manipulation firepower. Using filter plug-ins with *Live Picture* does take longer than with *Photoshop* since it has to access your image file from disk, whereas *Photoshop* keeps the image in RAM.

or packaging design. But for all its creative muscle, it uses a dramatically different approach which will take some getting used to, particularly because its interface is decidedly non-standard for a Mac program. While this works effectively, it doesn't sit as comfortably as *xRes* with other design programs you might use regularly, although it excels at what it does, *Live Picture's* complexity doesn't enable you to anything more with your images than you can with *xRes*.

xRes on the other hand has the same gorgeous 3D interface that Macromedia pioneered with *FreeHand*. By enabling you to work in such a direct mode, *xRes's* extra paint tools and lower price make it a more obvious choice. It combines the ability to make up

composite images with photo retouching and computer painting facilities that make it an accomplished and versatile all-rounder.

As a long-time *Photoshop* fan, I never thought I'd say this, but as image processing packages demand more and more System resources and image files get ever larger, *xRes* is probably a better choice than *Photoshop* for handling files over 10Mb in size.

While *Photoshop* may – and may is the operative word here – still be the better all-round package, *xRes* is probably the most logical progression from it, and something that you could quite possibly find yourself preferring to use from now on.

MF



Layers are fundamental to the way *Live Picture* works. For this reason, the *Live Picture Layers* panel offers far more detail about each layer than you would find in a program like *xRes* or *Photoshop*.

Which one's for you?

What it all boils down to is that these are both specialist image editing packages. As such, they may not seem like something you can't live without on your Mac at home; but as image editing is continually pushed into new areas, the need for packages like *xRes* and *Live Picture* increases.

Even if your Mac has 64Mb of RAM, you're still going to have problems throwing around a 30Mb image in *Photoshop*, yet a full-page, A4-size scan will quickly reach this size once you've added a few layers and channels. Because of this, a program like *Live Picture* or *xRes* that stores your image on disk is essential.

But which of the two do you go for? That depends on your needs and the use to which you're going to put the software. *Live Picture's* excellent compositing tools make it the obvious choice if you're a designer or you work with video sleeves, book jackets



xRES 2

Price: £645. **Out:** now.
Requires: Quadra or Power Macintosh (PowerMac-native), 12Mb of free RAM, 500Mb of free hard-drive swap space recommended, System 7, CD-ROM drive.
Contact: Computers Unlimited on 0181 200 8282.

FEATURES

Enough features to replace *Photoshop* as an all-round painting and image processing package.

87%

EASE OF USE

Not as easy to use as more standard image manipulation packages, but its good interface makes things simpler.

80%

DOCUMENTATION

Macromedia manuals are always excellent. This is no exception.

90%

VALUE FOR MONEY

You'll need a lot of disk space and a powerful machine to get the most from *xRes*, but if you have to edit huge images regularly it's a good bet.

86%

MACFORMAT RATING 91%

LIVE PICTURE 2.5

Price: £934, or £1,169 including software and one day's training. **Out:** now.
Requires: Quadra or PowerMac, 32Mb of RAM, System 7, 256-colour monitor, CD-ROM drive.
Contact: IMC on 01344 871329.

FEATURES

For compositing images there's no program to match it. It's also strong in other areas.

82%

EASE OF USE

The different way in which it works makes it less immediately intuitive to use. This time the interface is less helpful.

69%

DOCUMENTATION

Well-worded, clearly explained and beautifully illustrated. This manual explains what you need to know superbly.

92%

VALUE FOR MONEY

Although it's lots cheaper than it used to be, it's still not competitively priced.

79%

MACFORMAT RATING 85%

LIVE HEAVY

Live Picture is also working on *Live Picture Network*, a sophisticated program that enables studio designers to collaborate on the same piece of work from their own desks.

Bryce 2

If you thought mankind could not yet visit strange new worlds, follow Derek Smith as he journeys into the 3D landscape of his imagination with MetaTools' world-maker.

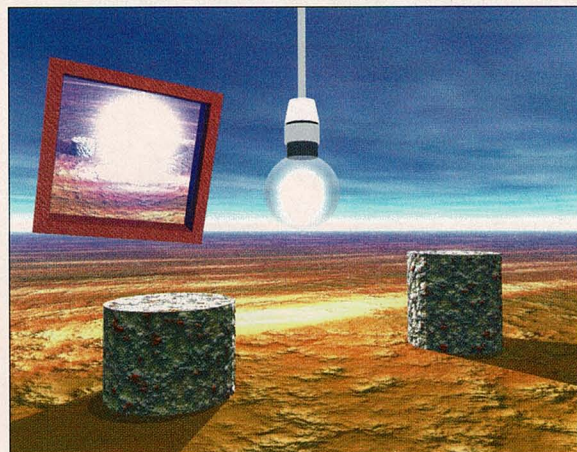
The Mac is blessed with many practical applications, and lately an increasing number of entertainment titles. But for a program to successfully straddle the chasm between these two objectives is a near impossible task. *Bryce* is among the few that succeed.

The first version, which was reviewed in *MACFORMAT* 20, received a Classic award for its innovation and ingenuity. It's a 3D creation program, primarily for landscapes, but it's also suitable for simple 3D tasks.

You start with an empty virtual

world as your canvas, into which you can place a variety of objects. Like a painter creating a landscape, you start with an infinite plane of land or water to act as your ground. Then with one click of the button, you can add a randomly-generated mountain or rock, which you can position at will in your world. You can apply a variety of textures to these items and then rotate, resize and manipulate them. What starts out as a small hill can soon become a snowy mountain, grassy hillock or rocky cliff. You can conjure an infinite variety of skies from the void, and the sun obeys your will. Mists roll across the landscape and clouds give form and structure to your skies. Thus you can create your virtual world.

But *Bryce* doesn't limit you to landscapes. You can also create cubes, spheres, cylinders, cones and now even a torus (doughnut to you and me). A crucial new feature is the ability to create shapes using Boolean mathematics. These greatly expand your creative potential – see the 'Boolean what?!' box for examples of Boolean objects. However, *Bryce* does not aspire or even pretend to be a fully-featured 3D drawing package and there is a limit to how much you can manipulate these objects.

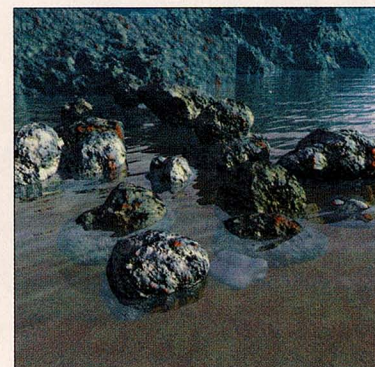


In *Bryce 1* the sun was your only true light source. In the new *Bryce 2*, you can create any number of light sources, placing them exactly where you wish.

As speedy as your Mac might be, all this grandeur cannot be formed in real time. As you develop your world, you view everything as a wireframe. You can place the camera anywhere in your scene with precision, and when you are happy with the view you can render it. Depending on both the speed of your Mac and the complexity of your world, this can take anything from several minutes to several hours for the most detailed scenes. The authors of *Bryce 2* have given this situation a lot of thought and have added several



This picture shows several new objects that you can create. The danger sign is a PICT photo which has been imported. The sign acts as an object in its own right, even though it's only two-dimensional. The large rocks are a new item in the *Create* palette – as are the torus rings which are used to make the chain. You can create more complex shapes like the shark in a separate 3D or Computer Aided Design package, then import them into *Bryce* to render them.



Creating craggy rocks and realistic water is easy in *Bryce 2*, but it lacks the option to add sewage.

BOOLEAN WHAT?!

Probably the most important additions to *Bryce 2* are Boolean objects, which give you the ability to take one object away from another or

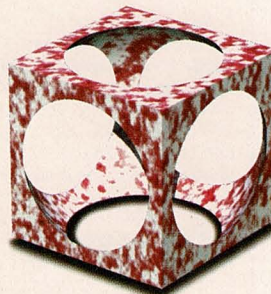
show only the area where two objects intersect. To demonstrate, we created a cube, then a sphere, and placed it inside the cube.



Here both objects are **Positive**; in other words, both are solid. This combination was possible in the earlier *Bryce 1*.



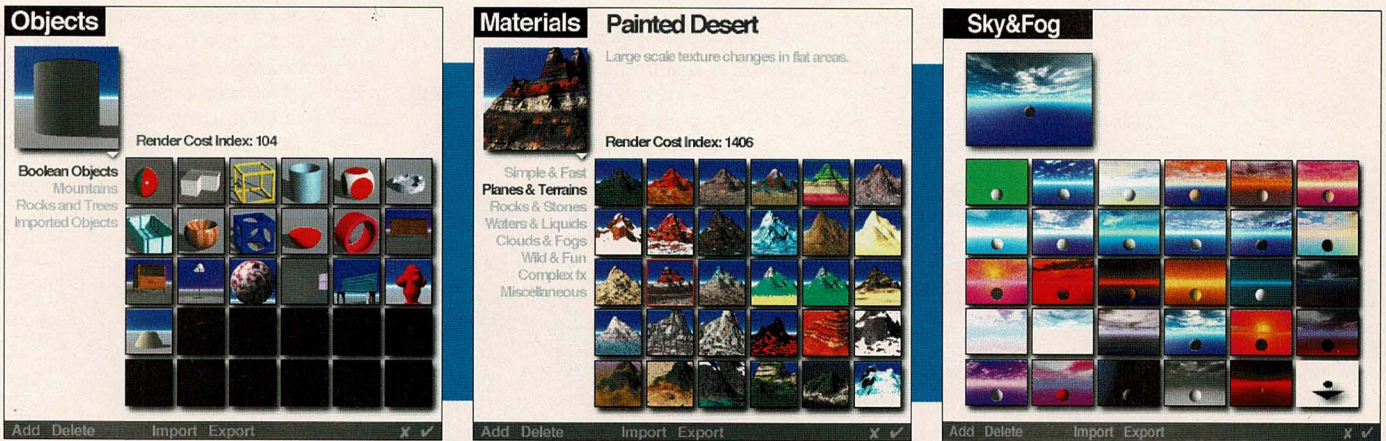
If the cube is made **Negative** it vanishes, along with the part of the sphere that we had placed inside it.



Here the cube is **Positive** and the sphere is **Negative**, so the sphere is subtracted from the cube to leave this shape.



Finally, if you make one object **Positive** and set the other to **Intersect**, only the area occupied by both is shown.



Pop-up menus make it much easier to see and select skies and materials, along with objects you can store in a library. It certainly makes a change from picking options from a dry list in a menu.

features to help. You've always been able to render just a portion of the scene, but now you can also render the whole thing with textures turned off. This is alongside an option to do a fast render, which gives you a picture of about 80% quality in just 20% of the time. A mini-rendering of the whole scene, which constantly updates in the top left corner of your screen, is also useful.

MetaTools products are infamous for their bizarre interfaces which look like nothing else on the Mac. *Bryce 2* is no exception. Broadly similar to that of the original *Bryce*, the interface has been extensively expanded. Many tools lie hidden around the edges of the screen, only showing themselves when the pointer is in their vicinity. The tool icons themselves were

rendered in *Bryce 1*, and most actually animate when the pointer is over them. An interface like this will always have opponents who decry it as outlandish, non-standard and power-hungry, but it's so outrageous that it becomes acceptable, a kind of Julian Clary of software design.

Unfortunately all is not well in the garden. The thin manual that comes with the software takes the attitude that the best way to learn the program is to play with it. With this in mind, the authors only give a brief explanation of tools, then advise you to practise. As soon as things get complex, the manual refers you to a second electronic manual on the CD-ROM, but this merely repeats – often verbatim – the printed manual. *Bryce 2* is an unusual program: getting good

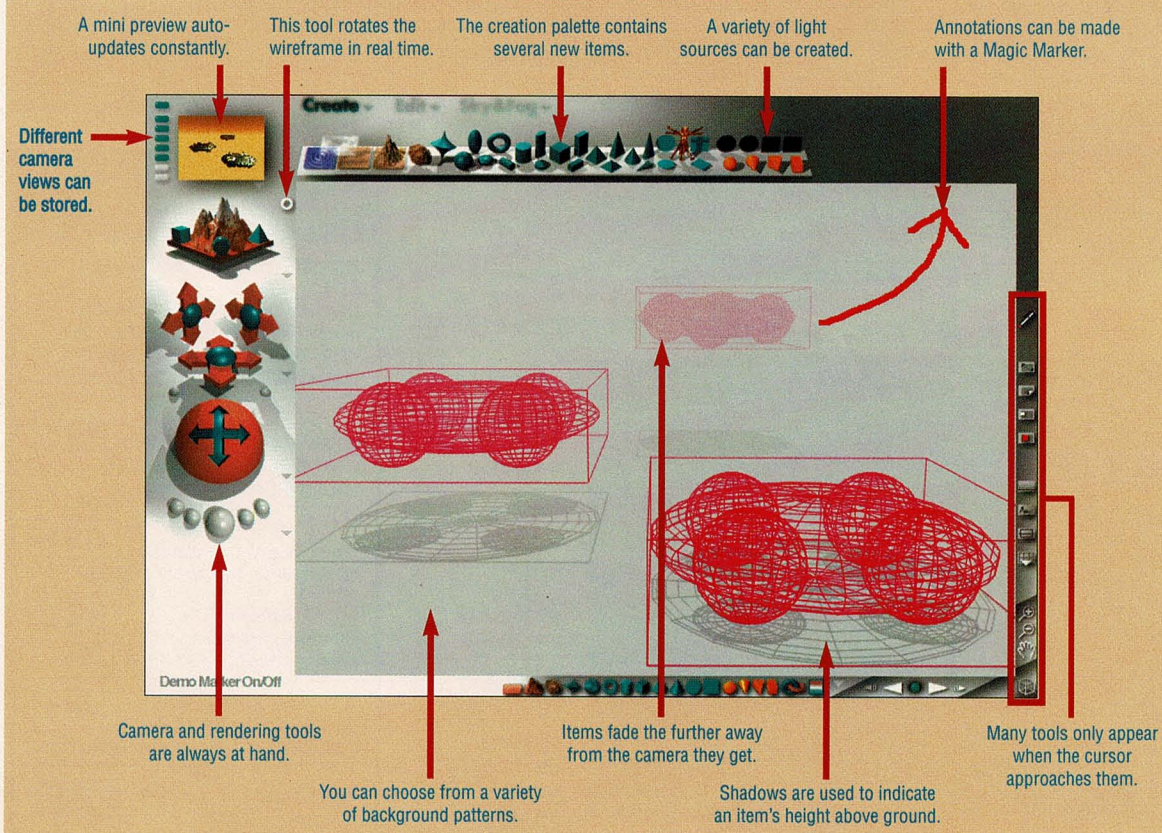


The new terrain editor gives you a vital tool which enables you to raise or lower land by painting directly onto the greyscale representation of the landscape. You would have had to do this in a separate paint package before.

results is easy, but to get great results requires an in-depth knowledge of all

Continued on next page

THE BRYCE 2 INTERFACE



MEET METATOOLS

If you recognise the products but not the name, it's because HSC has changed its name to MetaTools.

SUPERBRYCE

According to MetaTools, *SuperBryce* will be available in a couple of months. It will be virtually identical to *Bryce 2*, but will offer the added ability to create QuickTime animations and fly-throughs. It's expected to cost around £450, but if you already own *Bryce 2* you'll be able to buy it more cheaply.

RAM CACHE

If your PowerMac doesn't have a RAM cache, now's probably a good time to buy one. Having it fitted will noticeably improve your rendering speeds. See MACFORMAT 37's 'Bigger, better' feature.

CD TOO

Bryce 2 comes with floppies as well as a CD-ROM. However, you won't get the best from the program without a CD-ROM drive, as the CD is packed with all sorts of examples, tools and extras.

the facilities available, some of which the manual completely fails to mention. Without such additional help from sources like the *KPT Bryce Book*, reviewed in MACFORMAT 33, you won't be able to reach the most dizzying

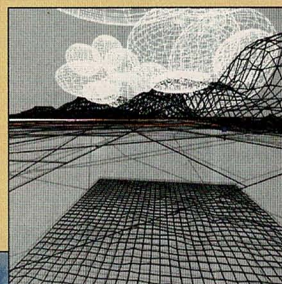
creative heights, and that is a shame.

The enjoyment and artistic potential to be gained from using *Bryce 2* are enormous. If you've ever fancied using a 3D program but have been discouraged by their complexity, *Bryce 2* is the

one for you. If you're a professional graphic artist, then it should definitely be in your armoury; and if you bought a Mac just to have some fun, this 3D playground is just what you've been waiting for. **MF**

HOW DO THEY DO THAT?

Bryce 2 reigns supreme in the field of landscape creation. The basic construction of this photo-realistic picture is simple, comprising only a dozen or so objects. However, getting the composition right does take a lot of practice. There are dozens of such pictures on the CD provided, and examining them is one of the best ways to learn the art of making your own masterpieces.



The wireframe view of the lake reveals the spheres in the sky; these become clouds when rendered.

The high clouds are randomly generated.

These clouds are spheres with a fluffy white texture, placed slightly in front of the mountain tops.

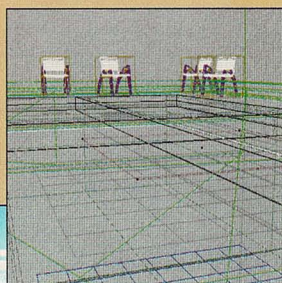
The mountains are made from a combination of materials, making the highlands green and lowlands stony.

Each mountain range is a separate terrain. If you make some smaller, they appear to be much further away.

Bryce 2 handles water better than its predecessor. To get this still pond effect, create an infinite plane; make it mostly transparent; give it a bit of shine and reflection; and finally add a blue tinge.

The lake's bed is a very flattened mountain with a pebble material, placed beneath the water level.

This example shows that *Bryce* is not just for landscapes, but is also suited to basic 3D work. If you already have a 3D creation program, you may want to use *Bryce* purely for rendering. A word of warning though: importing DXF graphics (a common 3D format) requires a lot more than the recommended amount of RAM.



The chair is created in a 3D package and imported into *Bryce*, then duplicated three times.

The pool is simply a single large block with a smaller negative Boolean block placed inside it.

The floor and sides of the pool are given a flat, chequered, smooth material.

Make water perfectly transparent and give it a high frequency. This gives you a more rippled effect than in the lake above.

Create the chairs in a full 3D program, then import them into your *Bryce* scene.

This step is made simply of two long rectangles laid at right angles to each other.

Position the sun carefully in the sky to make the shadows fall at the right angle.

The bottom of the pool could appear too dark, so place a light source within the water to make it bright and sparkly.

BRYCE 2

Price: £233.83; upgrade from *Bryce 1* £116.33. **Out:** now.
Requires: Quadra or better (PowerMac recommended), 8Mb of free RAM (12Mb recommended), System 7.1 or later.
Contact: MetaTools on 01734 880244.

FEATURES

Bryce 2 is ideally balanced, with plenty of features, but not so many that it becomes too complex.

93%

EASE OF USE

The interface is pure gimmickry but suitable for this strange program.

89%

DOCUMENTATION

Pathetically inadequate – 40 pages of instructions in black-and-white.

35%

VALUE FOR MONEY

You'll need to buy a book to get the most out of it, but otherwise good value.

88%

MACFORMAT RATING

93%

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Deck II

Ideally, you should be able to combine audio recording with MIDI sequencing. Ian Waugh looks at two bits of kit, the first of which handles direct-to-disk recording.

It's one of the less well-known direct-to-disk recording programs, but a lot is about to change for *Deck II*. Under the direction of new owner Macromedia, it is being promoted not only in its original role as a digital recording system for musicians, but also as a solution for multimedia developers, video post-production studios and MIDI users.

The latest release, version 2.5, has increased support for PowerMacs. *Deck II* will already run on many Macs if they're fitted with a digital audio card, but no extra hardware is required if

you own an AV Mac or a PowerMac.

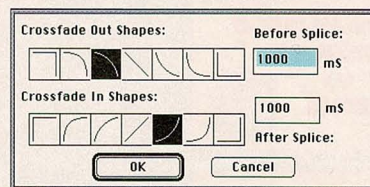
The number of tracks you can play back at one time depends on the computer's speed, the amount of RAM available and the speed of its hard disk. A Quadra 660AV should manage six tracks, an 840AV eight tracks and a PowerMac 6100/66 eight to ten tracks. With sufficient RAM and a fast hard disk, the fastest PowerMac should be able to play an amazing 32 tracks!

With a PowerMac you can apply real-time effects to the tracks too. These include delay, echo, parametric and graphic equalisation (posh terms for tone controls), chorus and reverb.

On track

The program works much like any direct-to-disk software: you record sections or 'regions' of audio and then place them where you require on the tracks. There is a full range of editing functions, and you can chop and mix regions to achieve any arrangement of sounds you like. There are crossfades, which make one region fade in while another fades out and several preset fade shapes for you to choose from.

On the whole, *Deck II*'s editing is non-destructive, so you can cut and paste without destroying the original data. It does include some destructive edits, such as reverse, but it offers you the option to work on a copy of your



Deck II has seven fade in and seven fade out shapes which you can apply to audio regions to create a range of crossfades.

data, so even this doesn't necessarily burn your bridges.

There are two edit modes: Range and Object. You can use Range mode for cutting objects and creating fades, and Object mode for editing complete objects, for instance entire regions. Many actions have to be undertaken using the mouse while you also hold a key down. There are lots of these instances and you might not find them particularly easy to learn.

During recording, indicators in the Mixer show you the level of the incoming signal. If it is too loud it will distort and you have to avoid this, as digital distortion is not only noticeable but also extremely unpleasant.

As well as recording directly into the program, you can import audio files both from disk and directly from an



A typical *Deck II* recording session, dragging audio regions into position on the tracks to synchronise with a QuickTime movie.



In the Memory & Storage Preferences settings window you can specify the number of audio tracks you want to use.

A BRIEF HISTORY OF DIGITAL MUSIC

In the beginning there was the multi-track tape recorder. Individual music lines or instruments were recorded onto their own track using a microphone, and a piece of music was built up a track at a time.

Tape is an analogue medium. If you could see the sound on the tape it would look like the experiment where you cover a magnet with a piece of paper and sprinkle iron filings on it. There are no absolute values here, just continuously varying waveforms.

MIDI moments

Next came MIDI (Musical Instrument Digital Interface). This is completely different from tape recording and relies on electronic musical instruments. MIDI is essentially a messaging system. When you play a note on a keyboard, twiddle the Pitch Bend Wheel or select a new sound, the MIDI system in the instrument generates the corresponding MIDI message. A MIDI instrument receiving a message would respond just as if that instrument itself had been played.

MIDI does not transmit sound – just digital messages. It can tell an instrument to select 'sound 3', but how that sound is reproduced will depend on what that instrument is.

The development of MIDI sequencers gave musicians the ability to edit – with extreme precision – every aspect of an electronic music performance. MIDI enables you to alter an individual note in the middle of a chord simply by changing its MIDI data – you can't do that with a tape recording.

Going digital

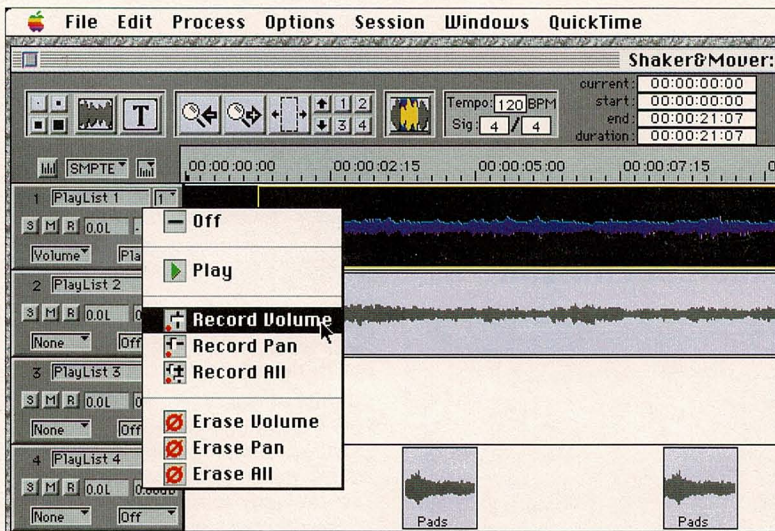
And then digital audio appeared. This converts sound into numbers and stores it in either a computer's RAM or hard disk. When it's saved to disk, the process is – naturally enough – called direct-to-disk recording.

Digital data consists of numbers. When a sound is converted into digital data, it is analysed or sampled several times and each sample is given a number. The more samples that are taken, the more accurate the digital representation of the sound. This is called the

sample rate. CDs use a sample rate of 44.1KHz, where sound is sampled 44,100 times every second. Most multimedia CD-ROMs use half that – around 22.05KHz.

The sample resolution is the number of bits used to store these values. Using eight bits gives you a resolution of 256, which means any number can be between 0 and 255. Using 16 bits offers a much higher resolution with values ranging from 0 to 65,535; so the more bits you use, the nearer the original sound the sample will be. Music CDs use 16 bits. Some CD-ROMs do too, but many still use eight bits. Although eight-bit sound is rougher, it takes up less room on a disc that may already be crammed with graphics and video.

Music is recorded in regions which you can place on any track. Regions can be cut, copied and pasted, and you can apply effects such as reverb to them. Although it's difficult to pick out a single note within a chord when using digital data, you can still edit and process it in ways that are completely impossible with a tape recording, making digital audio a far more powerful recording medium than tape.



The pop-up menu in *Deck II* gives you instant access to controls like recording or erasing volume and pan data into a track. These functions can also be accessed from the Mixer.

audio CD. This is ideal if you need to work with pre-recorded material or want to use CDs containing samples.

Going to the Library

The Library keeps track (sorry!) of the regions in use and you can drag them from here to a track. You can import files directly into the Library, thus building yourself a database of ready-to-use material.

Much like *SoundEdit 16*, *Deck II* uses Automation Envelopes to control the volume and pan position of a region. You draw these directly over the waveform and shape them with the mouse. You can record changes in volume using faders in the Mixer and create Automation Envelopes which you can edit in the Track window.

The Track Control area to the left of each track contains mute, solo, pan and volume controls. Many of these are also available in the Mixer, so you don't have to flit from window to window to adjust a setting.

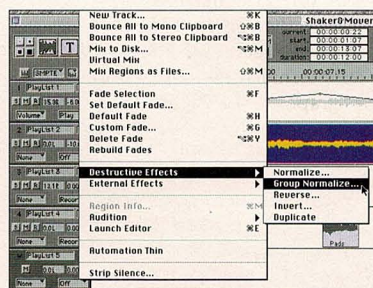
You can work with more tracks than your system is capable of playing – useful when you're creating an arrangement. Only the top tracks will play and you can drag sections of audio around the window, turning scratch tracks into playing tracks.

Very effective

As well as the built-in effects available with PowerMacs, you can also benefit from third-party plug-ins from companies such as Waves and InVision Interactive. *Deck* is also compatible with *Adobe Premiere* plug-ins. This open-ended architecture is finding its way into many direct-to-disk programs and is a superb idea.

If you run out of tracks, you can always bounce – or mix – selected tracks onto another track. Unlike bouncing with a tape recorder, this process is completely noise-free.

Deck II also supports QuickTime movies, which play in time with the

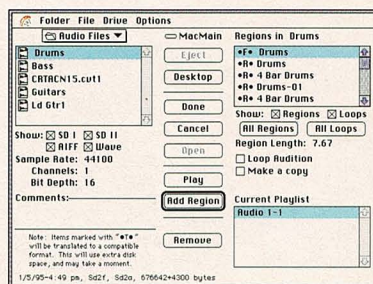


The Process menu has many edit features and effects which can alter your audio data for ever.

program. You can create a soundtrack and export the result as a complete movie, perhaps loading it into a program such as *SoundEdit 16* for further editing.

You can import a MIDI file into *Deck II* and play it while you create your audio tracks. However, *Deck II* also has special features for synchronising with the *Metro* sequencer (which is reviewed over the page). It locks the timing of the two programs together and if you have enough RAM – and *Metro* doesn't need very much – you have the possibility of working on both the audio and MIDI sections of a piece simultaneously.

Deck II is a well-constructed piece of software. Perhaps it's not quite as intuitive in operation as you might like, but its features help make up for its prolonged learning curve, and once you become familiar with its modus operandi you'll find it a very powerful and flexible digital audio program. **MF**



You can import several types of audio files and convert them into a compatible format in *Deck II*.

DECK II, METRO, SOUNDEDIT 16 AND OTHER STORIES

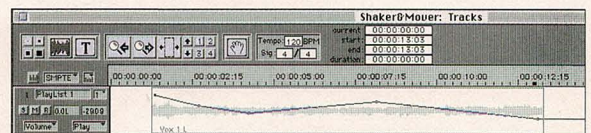
OSC was a small American music software house with just a handful of products. The major multimedia software company Macromedia clasped OSC to its corporate bosom (OSC was 'acquired', in other words), adding a quality digital audio program – *Deck II* – to its catalogue.

Macromedia sees *Deck II* as a complementary product to *SoundEdit 16*, the company's multimedia audio program, which scored 80% when it was reviewed recently in *MACFORMAT* 36.

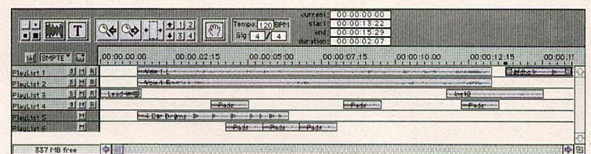
Although both are available separately, they are also available in a bundle at the advantageous price of £586.33 – a saving of over £230.

But when Macromedia bought OSC, it didn't get *Metro* as part of the deal. *Metro* was never an OSC product at all, but licensed from its author Jeremy Sagan, and the rights have now reverted to him.

Deck II distribution has moved to Macromedia's distributor, Computers Unlimited. Natural Audio was OSC's UK distributor. The company specialises in the music industry and Macromedia is keen to support this market, so Natural Audio will continue to sell *Deck II* as well as *Metro*.



The Automation Envelopes of *Deck II* make it possible for you to draw pan and volume data directly onto an audio region in a track.



You can alter the height of the tracks. This means that if you're using a PowerMac you can see more tracks in a window without having to scroll.

DECK II VERSION 2.5

Price: £410.08. **Out:** now.

Requires: any PowerMac or Quadra AV; or PowerBook 520, 540, 5300; IIfx or better, fitted with a Digidesign digital audio card such as the AudioMedia II; 8Mb of RAM (16Mb recommended) System 7.1 or later.
Contact: Computers Unlimited on 0181 200 8282.

FEATURES

A host of features, including a range of effects and support for third-party plug-ins.

86%

EASE OF USE

Not totally intuitive. However, a little use soon breeds familiarity.

74%

DOCUMENTATION

A good manual – well written and reasonably well-illustrated with tutorials.

80%

VALUE FOR MONEY

Good value if you want the features of more costly programs without the MIDI sequencer.

86%

MACFORMAT RATING

84%

BUSY PEOPLE

Macromedia's purchase of OSC and *Deck II* is part of its wider plan to provide a complete set of multimedia creation tools. See how it's done with image processor *xRes* on page 88.

Continued on next page

Metro 3.0

Functional, fast and fairly inexpensive, *Metro* is a linear MIDI sequencer, designed to work in tandem with *Deck II*, giving you complete musical control.

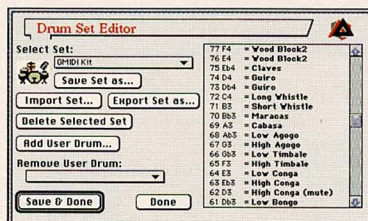
OMS FUTURES

Apple is building support for the Open Music System into its QuickTime video technology. This means you'll be able to create music tracks for video clips using any OMS music program.

Metro is another program with a low profile, but it has won more prominence through its association and integration with *Deck*. It's particularly interesting because it can run using just 1Mb of RAM, though if you want to use colour it needs 2Mb. Still, that's not a huge amount by current software standards.

It's also one of the few sequencers with no notation editor, the argument being that not many musicians read music. While you can draw your own conclusions about that, its omission makes the program smaller and able to run faster, so the lack of notation is not without positive benefits.

You can record up to 99 tracks to form a Section and you can work on up to 32 Sections at once. You can also create SubSections within Sections, which are simply Sections copied into another Section's track (got that?). It enables you to place a song of up to 99



You can import or create a Drum Set for use with *Metro's* Drum editor. Several kits are supplied, including one for General MIDI.

tracks within another song. The principle is similar to using nested folders. But for all these Sections and SubSections, *Metro* is basically a linear sequencer. Most other sequencers adopt a pattern-based approach, which many musicians find more intuitive.

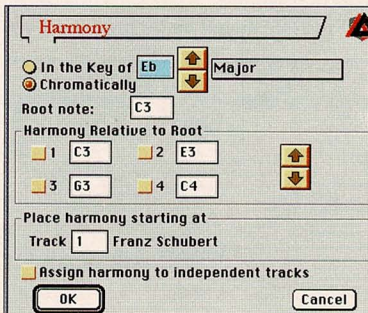
Metro uses three types of Instrument – Original, Metro and OMS. Original Instruments only play the MIDI channels on which a track was recorded. You can use these if you have only one sound module.

Metro and OMS Instruments can play any track on any MIDI channel and enable you to play a track on several channels simultaneously. OMS is Opcode's Open Music System. You tell the OMS which sound modules are connected to your Mac and which of the MIDI channels they use, and all OMS-compatible software is then automatically updated.

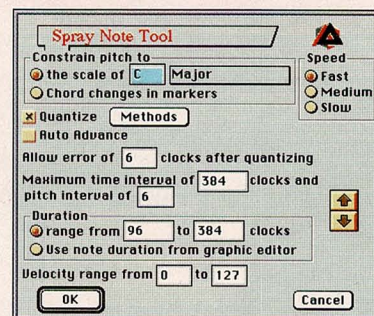
Graphically speaking

Metro's main editor is the Graphic editor, which displays notes as oblongs on a grid. You can see up to eight tracks at once and then edit the notes in various ways. You can view controller data such as Pitch Bend and Modulation, and it's easy to draw in new velocities for notes.

Metro also has a Drum editor and a Groove Quantise feature which enables you to apply rhythmic timing to



Metro can generate harmony tracks based on selected material, and you can select various harmonic criteria in this window.



The Spray Note Tool sprays notes into the editor. Here you can make it apply a little restraint.

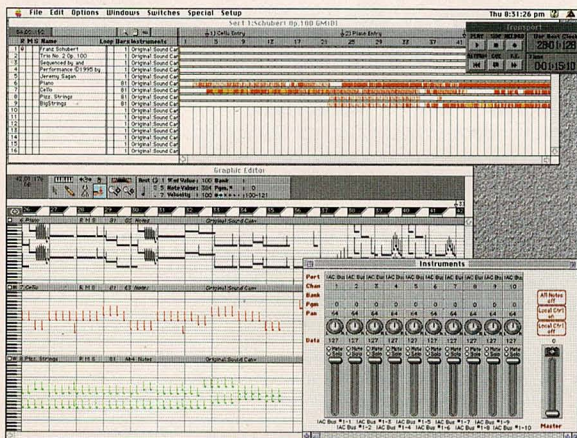
drum parts and notes. You can define your own grooves, too.

The Instruments window is effectively a mixer. The faders can be used to control any controller value and record changes you make in real time. The faders move on playback, too, which always looks impressive.

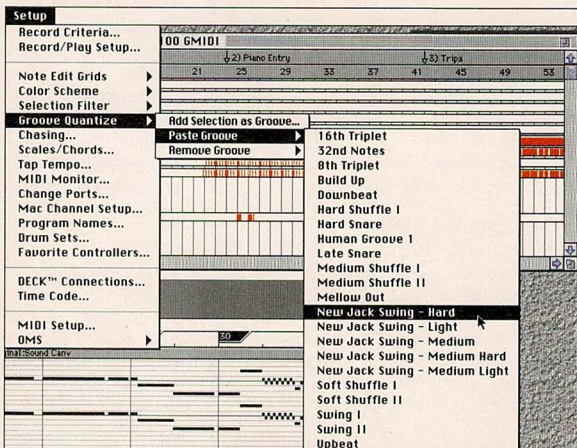
Metro has several other interesting functions. You can humanise a recording by introducing random timing differences, scale velocity values, reverse notes and compress MIDI data into a smaller time frame. You can generate chromatic and melodic harmony lines from existing notes and define non-standard scales.

The intriguing Spray tool sprays notes on to the Note editor, and the Selection Filter captures a random selection of notes. You can use these features as a valuable composition aid.

Metro is not as well-endowed as other pro sequencers, but it is still capable of doing a highly professional job. It integrates well with *Deck II*, but it works just as well alone. You have to decide if you need extras such as notation, offered by other sequencers, or if you prefer the benefits of *Metro's* speed, lower price and modest RAM and resource requirements. **IAN WAUGH**



This packed screen shows *Metro's* Track window, Note editor and Instruments Mixer, where sounds can be balanced and mixed together.



Metro has several built-in Groove Quantise settings which force a sequence of notes into a particular rhythmic grouping. New Jack who?

METRO 3.0

Price: £199. **Out:** now.

Requires: Mac Plus or better, 1Mb free RAM (2Mb recommended); and a MIDI interface, sound module and MIDI keyboard if you want to record music.

Contact: Natural Audio on 0181 207 1717.

FEATURES **70%**

Linear, not pattern-based, and not as full-featured as some sequencers, but has good integration with *Deck II*.

EASE OF USE **82%**

Generally quite easy to use in a point-and-click way, although it could be even more so.

DOCUMENTATION **86%**

A good tutorial, followed by a comprehensive reference section.

VALUE FOR MONEY **80%**

Half the price of most pro sequencers. Lacks notation and a few frills, but more powerful than budget sequencers.

MACFORMAT RATING **80%**

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History of the World

Dorling Kindersley's series of interactive encyclopaedias continues with this globe-trotting reference guide.

IN CLOSER DETAIL

If you're looking for a more in-depth discussion, check out Dorling Kindersley's range of specialist software including *The Way Things Work*, *The Ultimate Human Body* and *Stowaway!*

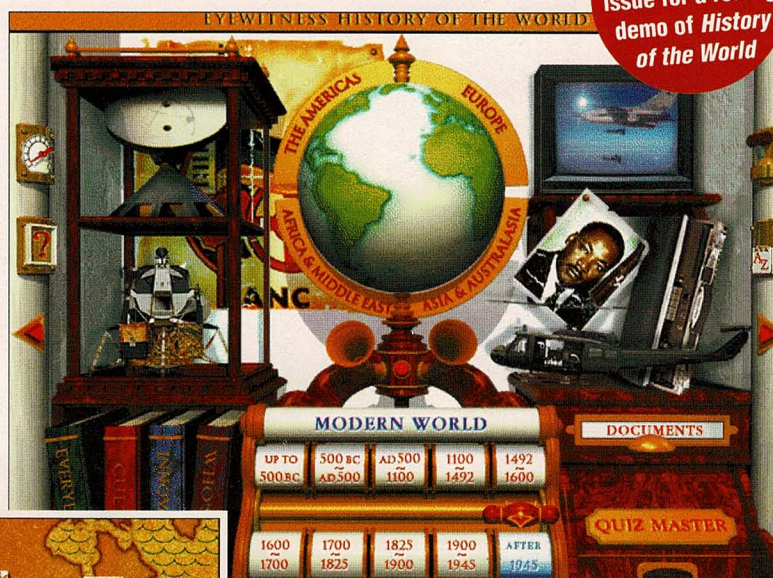
ON THE OTHER HAND

It's not all reference works. Dorling Kindersley has already released kids' title *PB Bear's Birthday Party*, and the more adult title *Anne Hooper's Ultimate Sex Guide* should be available any day now.

You've seen the TV adverts: 'The Best Rock/Pop/Dance/Punk Album In The World... Ever!' Considering it's describing a CD of recycled songs, the title's a bit adventurous to say the least. There's nothing really wrong with a bit of verbosity when it comes to PR nonsense, but as a description? Well, someone should give *Watchdog* a ring. Just as well we don't have that kind of hype in the computing industry...

So what's this CD-ROM called? Only *History of the World*. Just as you can only fit around 77 minutes of music onto an audio CD, there's only so much information that can be crammed on a CD-ROM. On the packaging for its latest release, Dorling Kindersley lists the multimedia it's squeezed onto this self-proclaimed 'interactive encyclopedia' – over 25 video sequences, more than 700 photos and illustrations, three hours of audio and over 70 animations – but 'History of the World' would still be a somewhat extravagant claim if you had 20 times that.

Of course no-one is expecting a billion years or so to flash up on their monitor; but despite the countless other CD-ROM encyclopaedias, Dorling Kindersley has a major head start on its competitors – quality. Its range of specialist titles (a DK sample disc is included in the *History* package) has



Adding a bit of class to the Mac environment, this teak bureau is the base for all your century-spanning operations.

Find out how a superpower was built with this study on the birth of the USA in the 19th century.

deservedly received rave reviews and it's kept to the same high standards for *History Of The World*.

With so much to cover, a crowded office bureau might not appear the wisest choice of interface, but a better description would be HG Wells's fabled time machine – as some exploration swiftly confirms. Select one of the ten time periods on offer and, with a spin of the on-screen globe, the artefacts that decorate your bureau instantly transform. Clicking on each object reveals a different story: where once there were NASA craft and helicopters detailing topics like the 1960s space race and the Vietnam conflict, there now lurk Easter Island statues or even Native American head dresses.

All this time-travelling naturally affects the rest of your multimedia armoury. From your almost constantly spinning globe (concentrating on specific global regions – The Americas, Europe and so on) to the range of reference guides (Who's Who, Innovations, Culture and Everyday Life), the changing content grants a layered knowledge, accruing quickly as you flit from subject to subject.

If you require a more rigid timeline, however, you will be disappointed. This is a screen layout where a Quiz Master option boldly takes pride of place over an A-Z index, and it's easy to see where Dorling Kindersley's intentions lie. History is here to be enjoyed, and while the range of content

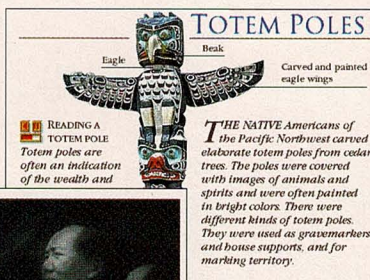
remains high whether it's Jazz Age sound samples or explanations of Islamic irrigation systems (!), the stress is on the eclectic rather than a more basic, and sometimes much-needed, linear approach. Yes, it's far more enjoyable an attitude, but as an encyclopaedia it doesn't really work.

Almost inevitably then, accusations over *History Of The World's* depth arise – especially with that albatross of a title. Multimedia trickery is all well and good, but the last part of those packaging claims is 'over 150,000 words'. That might sound more than enough but when Microsoft's *Encarta* includes over 9 million of the blighters, eyebrows can quite rightly be raised.

History Of The World is by no means superficial but you have to doubt its usefulness as an encyclopaedia. It would be far better to stress its superb design, breathless enthusiasm and undoubted quality as a springboard that takes you on to further research. Maybe it needs a change in title... *The Flashiest History CD-ROM In The World... Ever!* Maybe not.

MIKE GOLDSMITH

As this detail of a Native American totem pole illustrates, DK's *History Of The World* is eclectic in the extreme.



It's not all Western imperialism for *History Of The World*, as this video footage of Mao Tse-Tung illustrates.



CHINA UNDER MAO TSE-TUNG

EYEWITNESS
HISTORY OF
THE WORLD

Price: £39.99. **Out:** now.

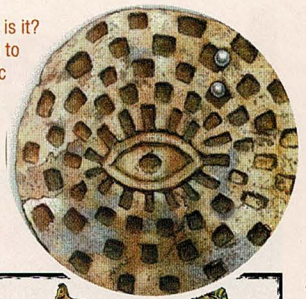
Requires: LCIII or better, 6Mb of RAM, System 7, a 13-inch, 256-colour monitor, double-speed CD-ROM drive.

Contact: Dorling Kindersley on 0171 753 3488.

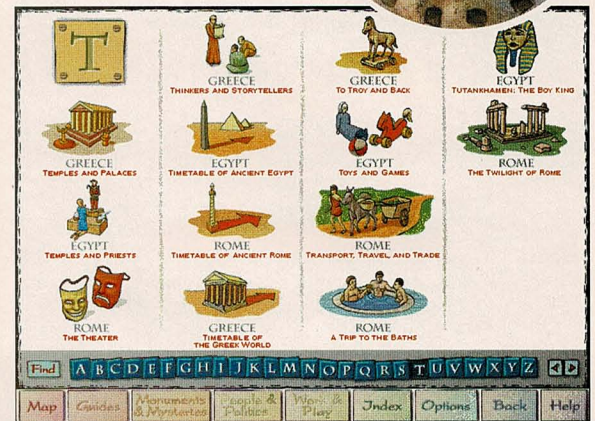
MACFORMAT RATING 89%

Ancient Lands

Not exactly *Doom*, is it? Ancient Egyptians had to make do with this archaic version of a proto-Solitaire game, *Snake*.



Hitch-hiking from Rome to Greece or Egypt is simple with *Ancient Lands'* attractive opening menu.



Navigate your way around the ancient world alphabetically, making use of this index screen to guide you through the different sections of history.

Having taken the present and with an eye on the future, Microsoft goes for the trio with *Ancient Lands*, its multimedia excavation of the past.

Of course, it was a darned sight easier back then. Pharaohs were pharaohs, slaves were slaves and Christians were eaten. Simple, right? Wrong, obviously – but in 1996, how is 30 quid's worth of a shiny CD-ROM called *Ancient Lands* going to illustrate this? *Cinemanía* had 100 years of movie history to choose its content from; but for this multimedia exploration of 'the mysterious world of the past', just how does Microsoft expect to unearth video clips of Caesar's assassination or sound samples of a fiddling Nero?

Thankfully, such temporal barriers haven't prevented Microsoft from adhering to the exemplary standards expected of it. *Ancient Lands* might not be as blatantly all-singing, all-dancing as *Cinemanía*, but with animations, puzzles and narrated tours constantly on hand, the task of breathing life into long dead events is duly met.

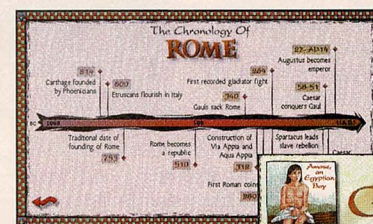
Although the material is divided between the three empires of Egypt, Greece and Rome, once you've selected your preferred country the approach to each is identical. Each empire is split into three sections – Monuments & Mysteries, People & Politics and Work & Play. And each is presented pretty much as regular users of Microsoft discs would expect, with high-quality illustrations accompanied by an informative snatch of text, all backed up by hypertext links to narrated sub-sections. Nothing particu-

larly revolutionary or in-depth there, but put into practice it's almost perfect.

One second the architecture of the Colosseum is being laid bare, the next you're being treated to a video clip of Ben Hur – only to whizz to a behind-the-scenes glimpse of a gladiator's life. Curious about the Greek equivalent? A quick click and your Mac reveals the history behind the early Greek games. Playing to your imagination, *Ancient Lands* is only too eager to break down cultural and geographical borders. It takes you from fact to fiction, from place to person; the only limit is whether you can control all this wanton eclecticism. With education in mind, such a deceptively simple, cross-linked approach is a dream – not only building up links between these vastly differing empires, but gently introducing lateral thinking to young minds.

If all this heady clickery sounds a touch on the disorganised side, *Ancient Lands* also boasts options that make it perfect for either the Mac novice or the younger user, while remaining deceptively simple. Each empire contains a well-illustrated index, but if you're unsure whether all your pointing and clicking is actually taking you somewhere, each country has been appointed a selection of guides.

Wise women, gladiators, slave girls, even museum curators – there's a guide for every occasion and if at any time you wish to stray from your chosen path, you can do so with the option to return to the tour. It's a



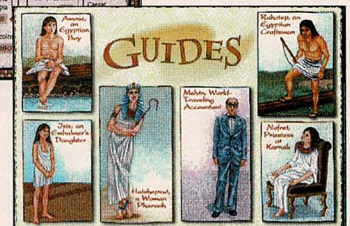
Time lines are used to help you to visualise important world events in chronological order.

shame then, given Microsoft's oft-quoted dedication to the localisation of its range and the attention it pays to other minutiae in

Ancient Lands, that the vast proportion of these guides sound as if they've stumbled off the set of *Melrose Place*. Let's hope such an oversight will be remedied in the near future.

Even though *Ancient Lands* hardly puts a foot wrong, as an encyclopaedia it will disappoint – but with brilliant style. With an eye on the younger audience, *Ancient Lands* entertains as well as educates, cultivating a wide interest in its topics rather than merely delivering a dry and off-putting catalogue. Unlike more comprehensive titles, *Ancient Lands* is a catalyst for the curious – but if it gets your child into the library, a catalyst is a pretty good thing to be.

MIKE GOLDSMITH



Can we spot the odd one out? Yup, it's Rahoetep – he's the only one in sandals.

KEPT UNDER WRAPS

Still unsure of how to navigate around *Ancient Lands*? A quick click on Help brings up an overview movie narrated by and starring a somewhat crumbly mummy.

STRANGE NEW WORLDS

Other titles in Microsoft's *Exploration* series include *Musical Instruments*, *Dangerous Creatures* and the excellent *Dinosaurs*.

ANCIENT LANDS

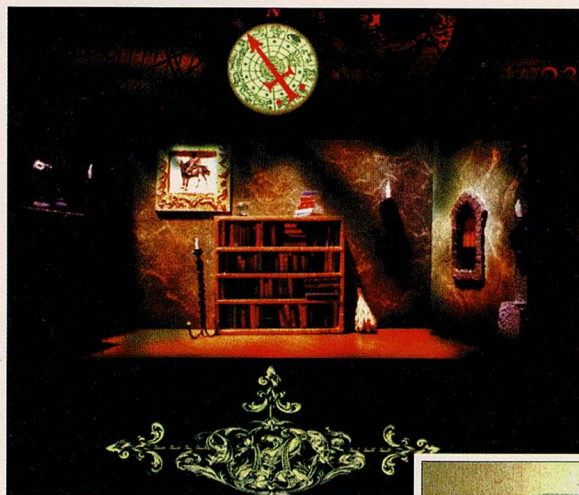
Price: £29.99. **Out:** now.

Requires: LC or better with 4Mb RAM, System 7, a 13-inch 256-colour screen, CD-ROM drive.

Contact: Microsoft on: 0345 002000.

MACFORMAT RATING **85%**

Legends of Arthur



Suitably atmospheric, Merlin's Tower is a point-and-click treasure trove awaiting your prying mouse.

SEE IF YOU CAN FIND...

The Mantle of Tegau – 'Almost certainly a late addition to the list of Thirteen Treasures, it is one of a number of such chastity-testing mantles found in the Arthurian tradition.'

SEE IF YOU CAN FIND...

The Hamper of Gwyddon Garanhir, or 'Tall Shanks' – 'Food for one person could be put in it and, when opened, it would yield food for a hundred people.'

It's not just Glastonbury you know... Traverse the History map to visit all the Arthurian sites dotted around Britain.

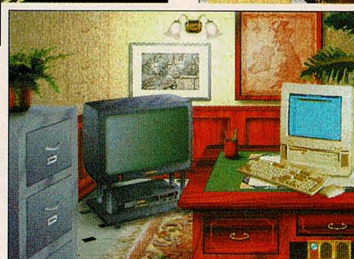


Nope, not the Walford-bound exploits of that Fowler jailbird, but a new effort to push the past into the future with a 'legendary' piece of multimedia.



A spin around the Round Table unearths the full info on those legendary knights of old.

It might not look particularly Arthurian, but the History Study hides a wealth of facts.



If you can't trust a review, surely you can trust a dictionary...

'legend' ('led3end)

n. 1. a popular story handed down from earlier times whose truth has not been ascertained. 2. a group of such stories: *the Arthurian legend...*

As the Third Edition of *The Collins Concise Dictionary* attests, King Arthur is legendary. For a nation of impressionable schoolchildren, such tales of romance and valour, swords and stones, are the tallest ever to mould a malleable young mind. Unfortunately... It's back to the first part of that defini-

tion, where 'the truth has not been ascertained'. Naturally, such Arthurian whispers have only heightened fascination with the whole mythos; so instead of attempting to reconcile the facts with the myths, *Legends Of Arthur* appropriately attempts to pay equal lip service to both. So, in a Glastonbury courtyard, a selection of three doors await your attention...

The door on the right, suitably oak-ened and battered, is the entrance to the Myths section. It's here you can revel in the tall tales that came after the man had passed. With the Round Table as an ideal interface, tales of the knights of that fabled piece of furniture and their (ahem) ladies can be swiftly unearthed.

It's a shame that the individual entries aren't too impressive. Giving you chunky hypertext essays on a murky background isn't exactly state-of-the-art – but mercifully, design isn't everything. The generous supply of legends is presented simply but knowledgeably (usually embellished by audio and video clips), and the wonder associated with King Arthur just about returns. I wonder if it really happened like that...

The door on the left, resembling the back door of a DSS block, is the entrance to the History Study. It's here you'll find the head behind the heart. A sterile office environment is your interface. Whether it's the wall map (an interactive guide to Arthurian Britain), the video recorder (a selection of video clips) or the computer (a fancy interface for the CD-ROM's

bibliography), the mood is appropriately sombre for this, the factual half of *Legends Of Arthur*.

The commentary is both clear and concise, be it about the theories behind Avalon or Arthur's birthplace. But, despite the obvious, if dubious, abilities of Count Nikolai Tolstoy (a 'leading Arthurian expert' apparently), this section screams for such additions as an A-Z index, or a print facility, or text transcriptions. Or... maybe even a little bit of magic.

A third entrance remains – a trap-door that leads down to Merlin's Tower. You must now search the various levels in a quest to find the fabled magician. As a rather simplified take on the 3D adventure game *Myst* ('adapting' it right down to the swirling doorways), this approach should work for the kids. By mixing fact with fantasy, it's a playful amalgam of both the Myths and History sections. Once again though, presentation lets *Legends* down. Objects that are supposed to be concealed will be easy to spot for your games-added kids, and the resulting rewards (Olde English info snippets) are both too difficult to understand and hardly a captivating reason for them to carry on playing.

So who's this CD-ROM aimed at? Adults? Children? It's a problem that *Legends Of Arthur* never really manages to come to terms with. The text and commentary deserve a more adult audience while the choice of interface, especially the History Study with its 'amusing' animated mouse, appears aimed at the edutainment market.

Maybe it's a by-product of *Legends'* separate-but-equal approach to fact and fantasy, but in 1996 it remains the magic of the imagination, not multimedia, that will keep Arthur alive in the hearts and minds of children of all ages.

MIKE GOLDSMITH

LEGENDS OF ARTHUR

Price: £34.99. **Out:** now.

Requires: LCIII or better, 4Mb of RAM, System 7, 13-inch, 256-colour monitor, double-speed CD-ROM drive, QuickTime 2.02.

Contact: Funsoft on: 0181 748 7565.

MACFORMAT RATING **68%**

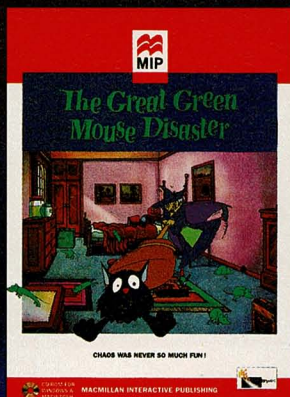


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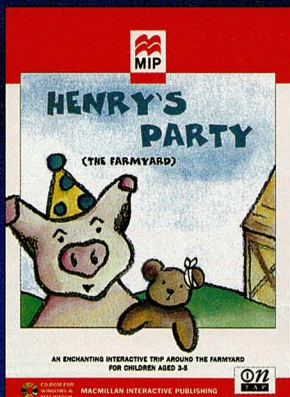
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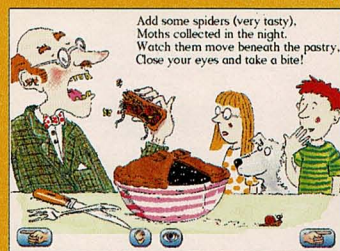
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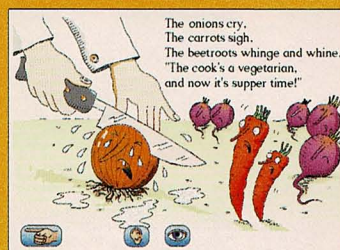
Ridiculous RHYMES

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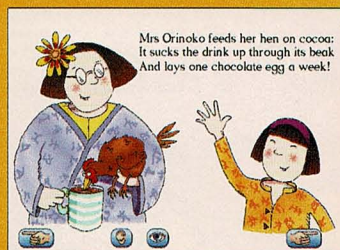
Written & illustrated by
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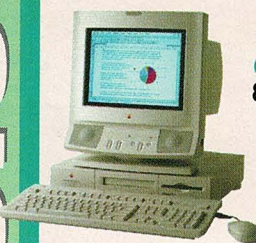
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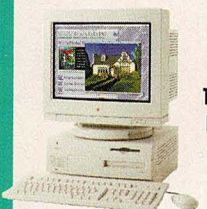
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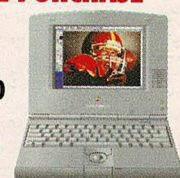
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International Athletics

There's a law for designing CD-ROMs that says: 'Pretty graphics do not a good disc make.' Someone should have told those nice people at Notting Hill, because sadly *International Athletics* does not live up to the pre-launch hype it received.

The disc is basically a database trying to disguise itself within a realistic environment you can explore. Objects placed within scenes based in an athletics stadium lead to you to information on different aspects of the sport.

If you have the patience to wait for the lengthy title sequence to remove itself from your presence, you'll find yourself facing a menu with three options – **Athletes**, **Commentators** and **Spectators**. The first two sections have beautifully rendered graphics; but when you decide to scroll around the scene to find a reference section, the movement is so jerky that you'll quickly become disorientated. You'll soon long to access an index to find the information you want, but sadly there isn't one.

After a little searching you should still find something of interest. Stroll down the **Athletes** corridor, and you can pop into the locker room to meet a few athletes hiding in their lockers. They'll tell you about various aspects of their sports – from what inspired them to what appeals to them about their particular event. Most of the athletes are American but you will find Sally Gunnell and triple jump specialist Jonathan Edwards lurking within. Unfortunately, the quality of the footage is so poor that you might not be able to recognise them.

Moving along the corridor, you come to the biomedical room. This contains information on the body, drugs and nutrition. The graphics are gorgeous and the fridge that opens to reveal athletes talking about nutrition, alongside textual information, is one of the highlights of the disc.

If you make it to the end of the corridor you'll find one of the lowlights, an attempt at a game. You have to try

Under starter's orders, this CD-ROM presents virtual athletics – but is it first to the finish or does it stumble early on?

to win at the high jump, hurdle, 800m or javelin by clicking on sections of a stadium track as colours appear. Remember that irritating electronic music toy called Simon? It's like a dismal version of that.

Once you've been in the **Athletes** section, you've seen the best part of the disc. **Commentators** contains trophies and medals; by clicking on them you can hear an audio recording of someone winning an event. If you're lucky you'll actually see some footage of the race. You can also click on some empty chairs to hear some topics of debate discussed by an athlete, coach or journalist.

You can also access an *International Athletics* World Wide Web site by wandering over to the camera control desk – it will have updated news on the Olympics this summer.

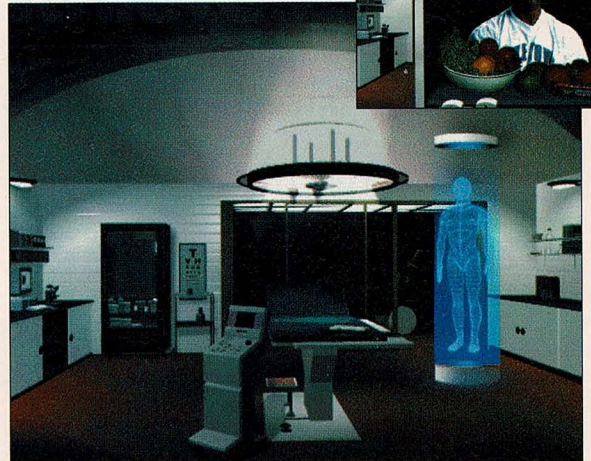
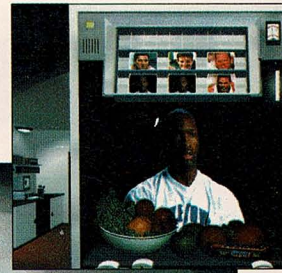
The final section of the disc to explore is called **Spectators** – and believe me, you'll feel like one. So much for good old-fashioned interactivity – you can either look at



The actual graphics of the **Commentators** and **Spectators** sections are fairly attractive at first glance, but as virtual environments go you'll quickly find them sadly lacking.

brief profiles on a few athletes or go to specific sections of the database.

You'll find you can access the database from almost any part of the disc, but don't get too excited – you probably won't want to hang around there for too long. It's a dark, dreary place that makes you feel as if you're reading an encyclopaedia in a corridor straight out of *Doom* – you expect to be terminated any moment. The screen background is dark and you simply scroll text down the page. There are no photos of athletes and not a tremendous amount



The biomedical room is quite interesting. The body takes you to the database section on the subject, while in the fridge you can read about nutrition or watch clips of six athletes talking about what they eat.

else of interest either.

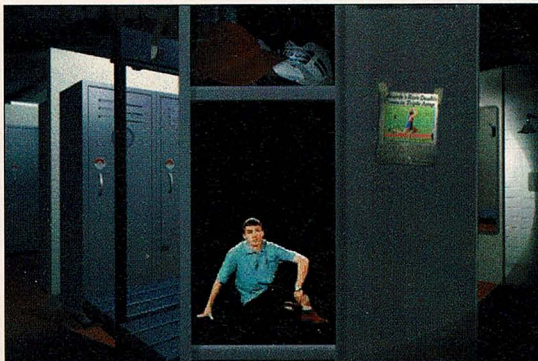
Some of the biographies are quite interesting, but without an index to look up the person you're interested in, you'll simply find yourself plodding relentlessly through them until you happen upon him. And there are some noticeable absences: you won't find Daley Thompson, for instance, or Seb Coe, even though he appears in the **Commentators** section.

Without direct links to other parts of the disc, the database could be just a normal reference book. The pretty scenes don't really serve a great deal of purpose and soon become tedious – navigating your way around, you feel like a country bumpkin travelling through London without an A to Z.

This is a great shame, because with a few tweaks here and there, and the removal of certain aspects – like the track game – the disc could have been a good one, although the appeal possibly would have remained somewhat limited to armchair athletes. As it stands, the whole thing simply serves as a frustrating, uninspiring and gloomy experience. **RACHEL HARRISON**

NOTTING HILL

A new multimedia firm headed by Andreas Whittam Smith, founder and former editor of the *Independent*, Notting Hill received a huge amount of press coverage before the launch of the company's first discs. It promised the titles would be different from anything seen before, stressing that all would have to meet the criteria of 'richness, interactivity, immersion, intensity and intimacy'.



In the locker room you'll be able to meet athletes like Jonathan Edwards and listen to their opinions, although you'll find the video quality is poor.

INTERNATIONAL ATHLETICS

Price: £39.95. **Out:** now.
Requires: Performa 475 or higher, System 7.1 or later, 5Mb of free RAM, a 256 colour 13-inch screen, double-speed CD-ROM drive.
Contact: Notting Hill on 0171 229 0591.

MACFORMAT RATING **56%**

The Great Green Mouse Disaster

Come with us to a place out of time, where you must save the dance as the orchestra does a runner. But by the time the tale ends, will you hate meeces to pieces?

MOUSE LINE

Macmillan Interactive has a customer order line as well as the support and information line listed in the ratings box. You can buy Macmillan CD-ROMs on 01256 302683.



Your mission, should you choose to accept it, is to explore the hotel and catch the mice hiding in each room.

The Oceanside Hotel, scene of *The Great Green Mouse Disaster*, is a grand, antiquated place, suspended within the dead seaside town you dreaded being taken to as a kid. Lost in a cartoon land that's oblivious to changing fashions, the hotel is the setting for a grand chase to avert a disaster so big that only tiny mice could cause it.

The Great Green Mouse Orchestra, the nature of its players obvious from its name, is in town to perform at the hotel. During a moment of confusion they break free and within seconds they're hidden throughout the hotel. It's up to you to find and catch them – or the dance is off.

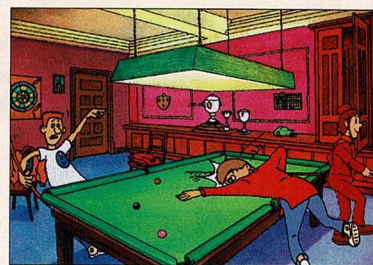
You're helped through the challenge by a dour Scots cat who's become hotel royalty now his mousing days are over. He offers advice if you get stuck. You search for the mice through a series of rooms that are inhabited by a menagerie of weird guests – a tortured artist, a slovenly beer-drinker and a witch among them. Your simple task is to click on different objects until you find the one hiding the mouse. The rodent then scampers for cover as you click furiously, hoping to

catch him. It's a simple, direct bit of fun for young children, and they're rewarded each time with the calamitous results of the hotel porter leaving the room with the mouse.

If you wish, you can then go to the rehearsal room to match the mouse you've caught with his instrument – again, this is a straightforward piece of trial and error. Mousician by mousician, the orchestra builds up until you've caught all 20. The finale is an animation displaying the guests enjoying the dance, with some neat twists to the tale.

The task you're set is so simple and repetitive that it's really only going to appeal to younger minds. But the disc is so well conceived that you can safely leave your child to get on with an unsupervised session. Your child can accept the responsibility of saving the day and is given enough incentive to feel proud of having done so.

The educational value of managing this *Disaster* isn't immediately apparent; but that's because your child will get more out of this than the mildly diverting spelling lesson many designers of kids' CD-ROMs settle for. There are some question marks over this program's longevity, but there are plenty of good ideas for its creators to develop. With its highly individual flavour and strong concept, this disc is anything but a disaster. **RICHARD HILL**



No matter how careful you are, you'll always create complete havoc in your wake as you attempt to round up the mice.



Visit a sleepy hotel in a dead seaside town and rescue it from mouse-shaped trouble in *The Great Green Mouse Disaster*.



Tall, short, fat, thin – you'll meet every sort of person as you seek out those pesky mice.

**MOUSE
DISASTER**

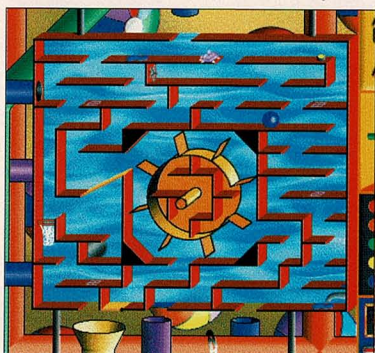
Price: £29.99. **Out:** now.

Requires: LC or better, 8Mb of RAM, System 7, 13-inch, 256-colour monitor, double-speed CD-ROM drive.

Contact: Macmillan Interactive on 0345 697008.

MACFORMAT RATING **81%**

Tools and Gadgets



By far the best part of the disc, the maze is a real challenge and shows the tools you've learned about in action.

This CD-ROM introduces you to the basic ideas behind everyday devices, but does it really enable you to make use of what

OSLO the chunky robot is your mute but charming guide to *Tools and Gadgets*, a mixed bag of games and activities centred around everyday devices. OSLO enables you to pick which section you want to start with. You'll be disappointed that some of

the buttons you click lead to very little of interest – here a random sound, there a short animation. There are only five sections that offer something more substantial.

A reference section is grandly called 'the interactive database'. It's actually a limited guide to the principles of

Allie's Playhouse

Come on in to *Allie's Playhouse*, where you can play and learn with a choice of 16 different activities.

Lots to see and do in this collection of 16 activities, as Allie the Alien invites you to join in with him and his friends as they play and learn.

Beware of the manual for *Allie's Playhouse*: it carries the sort of misleading instructions that are bound to perplex you if you're not used to the Mac. The installer program it urges you to use is absent; you can just double-click on the main program icon to start. But first make sure you've set your screen to 256 colours, as the colour palette is disrupted otherwise – and the programmers haven't thought to set the colour range for you.

Your dread of what's coming after this inauspicious start is relieved when you're invited to choose a companion who'll help you explore the playhouse. There are six children to choose from, of varying levels of cuteness, from Sarah (who likes dogs) to Julian (who likes cats, dogs... and tattoos. Strange boy). Whoever your favourite, he or she will be on hand with instructions should you get stuck. You'll already feel like this CD-ROM is your own.

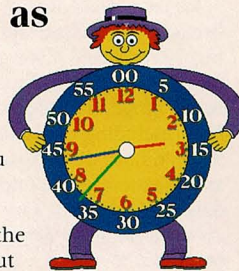
Once you're into the program, you're invited to wander around the playhouse. Sixteen activities are

You can choose which child will accompany you through the program; and perhaps they'll go on to star in a sitcom together.

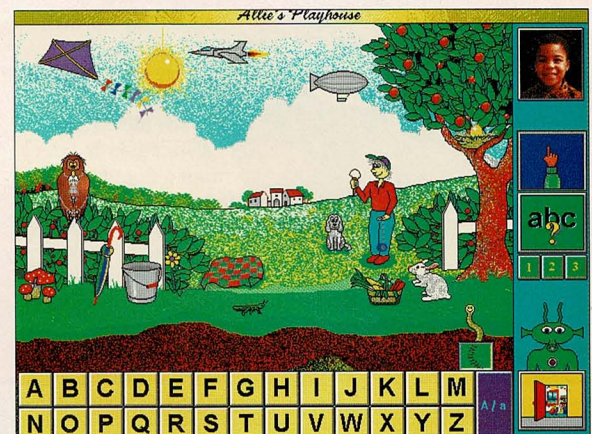
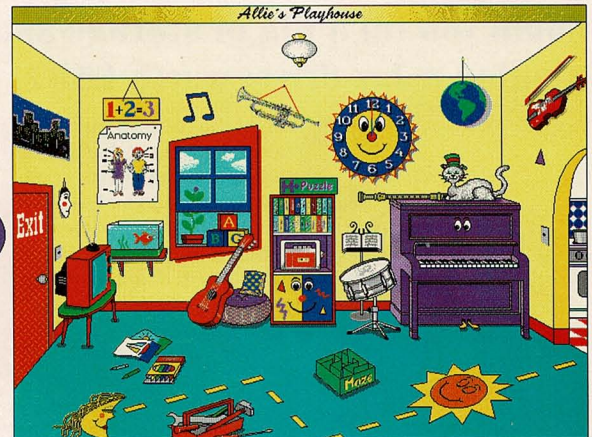
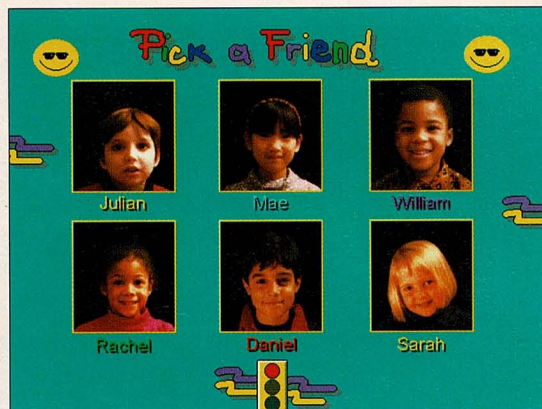
hidden within, enabling you to learn as you play. You can practise telling the time, learn about the continents or other planets. Areas like jigsaw puzzles and colouring books will be instantly familiar if you have half a dozen kids' CD-ROMs.

There's no doubt your child will benefit from spending time in *Allie's Playhouse*; but the presentation of the activities is so lacking in sparkle and new ideas that, after a while, it might engender a world-weary cynicism your child should never have at such a tender age. Your first impressions were right after all.

RICHARD HILL



How well can your child tell the time? If they get the answer right, the reward is for Allie the alien to... nod his head!



ALLIE'S PLAYHOUSE

Price: £29.99. **Out:** now.
Requires: LC or better, 4Mb of RAM, System 7, 13-inch, 256-colour monitor, CD-ROM drive.
Contact: Natural Wonder on 01923 469043.

MACFORMAT RATING **64%**

In this test of spelling, you have to guess which creature or object in the picture begins with which letter of the alphabet.

mechanics – how levers, wheel axles, pulleys and the like actually work. Brief text extracts are enlivened by animated symbols scattered among the words, but could you call it a database? Barely.

Then you get to see the devices in action. The maze game challenges you to guide a ball through a gauntlet of passages and pipes. If you can manoeuvre the ball through giant lever or screw-like props, you'll score extra points. A piece of education cleverly disguised as entertainment, the maze is the best part of the disc. But it's downhill from here.

A colouring book offers some crude pictures to scribble over with some crayons and has nothing to do with the disc's supposed subject matter,

despite the gratuitous addition of gimmicks like a game of noughts and crosses. There's a nonsense tale, presented in an interactive form that ultimately tries your patience, about a boy who assumes the shape of tools to rescue a llama. It's hardly a story at all, with thin or obscure jokes and no point whatsoever.

But the adventure game is the final straw. You explore a small town searching for clues and trying to solve the puzzles. Not only are some of the puzzles so difficult that they would challenge any adult, let alone your five-year-old, but few of them have anything to do with science. The whole thing is bewildering.

Tools and Gadgets does offer a level of interactivity that you could never find



OSLO the robot is your guide to *Tools and Gadgets*, an activity program based on the ideas that make tools work.

in a book – but interactivity isn't the same thing as involvement. What you're left with is a poorly-conceived mish-mash of weak ideas, which, at their best, are poorly executed.

RICHARD HILL

TOOLS AND GADGETS

Price: £29.99. **Out:** now.
Requires: LCII or better, 3Mb of free RAM, 6Mb of hard disk space, System 6.0.7 or later, 13-inch, 256-colour monitor, CD-ROM drive.
Contact: Natural Wonder on 01923 469043.

MACFORMAT RATING **38%**

Win a MicroNet Jaz drive

Could you fill a Gig of storage space? Find out by winning a Jaz drive, worth £587, courtesy of MicroNet.

One of the pains of owning any computer is that after a while your hard disk starts filling up and you have to do a spring clean to free up some space. Wouldn't it be nice to have a drive as fast as a hard drive, with just as much space, but which you could swap like a floppy when it got full?

That's the Jaz drive!



Successor to the vastly successful Zip drive, the Jaz is a 3.5-inch device that stores 1 gigabyte (1,024Mb) on each disk. The disks are little larger than a floppy and as fast as a hard drive. Each drive comes with all you need to connect it to your Mac and *The MicroNet Utility*, a formatting program that supports more storage media and formats than you could wave a SCSI controller at.

Omega, developer of the Jaz, has licensed the technology to MicroNet, a highly respected drive manufacturer. Based in the US, MicroNet produces a broad range of storage systems for the Mac, including CD-ROM drives, CD writers, hard disks, hard disk arrays, and magneto-optical drives. For full details of its range, give MicroNet's UK office a call on 01926 470460 or fax on 01926 470260.

We review MicroNet's Jaz drive on page 86 of this issue, where it scores a Classic rating of 94%. Now here's your chance to win one of these cool drives, worth almost £600, for the price of a postcard, courtesy of MicroNet. All you have to do is answer three simple questions and send us your entry. The closing date is Friday 14 June 1996.

The Rules

Employees of MicroNet Technology Inc, Future Publishing Ltd or associated companies, and their families, are not eligible to enter. Multiple entries are not allowed, unless on the back of

a jazz instrument (no recorders!). The editor's decision is final, no correspondence will be entered into, and there is no cash alternative. Please state if you don't want your name added to a mailing list.

MF

THE QUESTIONS

1. The Jaz drive is the big brother of which Omega product?
(a) The Blues Drive
(b) The Zip Drive
(c) The Velcro Drive
2. How much data does a single Jaz cartridge hold?
(a) 1Gb
(b) Half a ton
(c) Four and a half pints
3. Which of the following products does MicroNet *not* make?
(a) CD drives
(b) Magneto-optical drives
(c) Four-wheel drives with optional ABS brakes, sunroof and central locking.

Easy, or what? Send your answers on a postcard or the back of a sealed envelope (don't forget your name and address) to: 'Jaz up my Mac' Compo, MACFORMAT, 30 Monmouth Street, Bath BA1 2BW.

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It is said that if you leave an infinite number of programmers alone in a room with an infinite number of Macs, they will eventually produce a shareware program to perform every conceivable function. (Interestingly, it is also said that if Apple were to sell this many Macs it would still return a quarterly loss.)

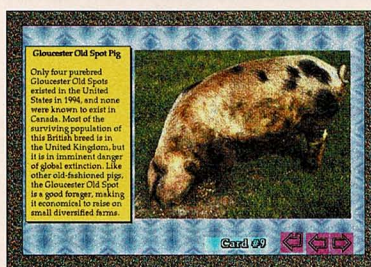
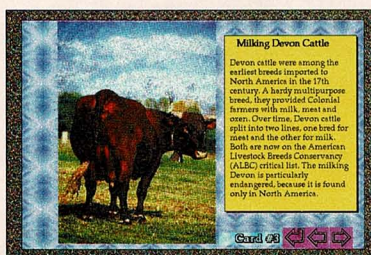
Evidence for this thesis can be found on the Internet and in this issue's shareware collection, as we bring you programs designed for on-line home brewers, chefs, conservationists and the gullible. A strange brew indeed. Mind you, some shareware programs would never exist without an infinite number of shareware authors. See this issue's margin notes to find out more.

Barnyard Ark CONSERVATION

Freeware

This *HyperCard* stack is dedicated to endangered species, but not creatures like Amazonian beetles, photogenic cute furry things, or even *Reader's Digest* competition winners. The endangered species in question are specialist domestic animals, once bred for food but now out of fashion. You know, things like cows.

This colourful stack contains photos



Barnyard Ark is a *HyperCard* stack which demonstrates that one species safe from being endangered is the environmentalist.



Shareware superhero Derek Smith dons red cape and tight underpants, and leaps tall buildings to bring you the best of shareware.

All the shareware featured here and more is on our covermounted CD-ROM

of each animal, which is useful since if it is endangered you probably won't have seen one. There's the Milking Devon cow, which looks rather like a cow. Or the Domestic Bronze turkey, which looks rather like a turkey. And surprisingly, even the San Clemente goat looks rather like a goat. In fact, all the animals look extremely like their ordinary cousins. No wonder no-one could care less about them. They should have been bred with more fur or big soppy eyes. These species don't need environmentalists, they need a marketing company.

There is a built-in quiz, which is embarrassingly inane, constantly telling you that you have just answered one question out of one correctly. 'That's 100%,' it informs you. This is a well meaning package of passing interest which demonstrates well that *HyperCard* can at last handle the glories of 256 colours. Mind you, very few people actually use *HyperCard* any more. An endangered species?

BrewMeister v1.0 HOME BREWING

Freeware

I've always thought that there are two types of people who indulge in home brewing. First, there are the extremely ordinary people who live next door, use all natural ingredients and eventually turn out to be badger baiters. Second are the students who have finally found a use for Boots. During our informative years, my college flatmates and I brewed a large batch in a

bin liner inside a plastic bin. Even the bin liner breaking failed to dampen our enthusiasm; the beer probably gained some flavour too.

This is the digital age though; we now have on-line brewers – as *BrewMeister* demonstrates, being compiled from Internet forums and bulletin boards about home brewing. I just hope these responsible adults don't surf the Net when over the limit.

BrewMeister is both a database of existing recipes and a tool to help you

If you fancy waiting a couple of months for a pint, get home brewing with *BrewMeister*. Alternatively, try ordering at my local.

Continued on next page

CONFUSED ABOUT SHAREWARE?

■ Shareware is a form of 'try before you buy' software selling and it's a great idea, so long as you're honest. When you get some shareware, the documentation file accompanying it will tell you how much it costs – typically somewhere between US\$5 and \$40 – and where to send your money. If you like the software and decide to keep it, you're morally obliged to cough up. Not only do you

get the satisfaction of boasting how honest you are to friends, but the author will often give you something for registering, like a printed manual or updates when they're released. The most common problem is sending money abroad but as many shareware authors now accept credit cards, it's getting easier.

■ Freeware means that you don't have to pay for it at all. There are many

variations like postcardware, where you have to send a pretty postcard to the author.

Freeware is not strictly the same as Public Domain (PD) because although you don't pay for freeware, the author keeps copyright and you must follow his conditions to use the program. This often means keeping all the files together and neither using nor selling them for profit.

GO TO BED

This utility keeps a record of how much of your life you've wasted sitting in front of a cathode ray tube.

Chipmunk BASIC 3.2.8

PROGRAMMING

Freeware

We featured this program a while ago, but it's worth commenting on this new version for the many new readers we've gained. As the name suggests, this is a Mac version of the BASIC programming language.

For those readers not familiar with BASIC, a quick lesson on the sophistication and scope of the language can be summed up in the following two lines:

```
10 PRINT "Smiffy rules OK"
20 GOTO 10
```

When I was a lad, operating systems hadn't been invented. Microsoft Windows was still just a glimmer in Bill's eye as he walked past one of the first Macs and thought, 'Hmm... I wonder if a system interface can be copyright?'. In the days when mice had legs, every schoolchild had to learn BASIC in order to use a computer. It's a

```
chipmunk basic
Syntax error, missing = in line 15
>1 rem "sieve.bas", a prime number sieve benchmark
>2 t = timer
>3 dim f(8194)
>4 for i = 0 to 8191 : f(i) = 1 : next i
>5 s = 8191
>6 for i = 0 to s
>7   if f(i) = 0 then goto 11
>8   p = i+3
>9   for k = i+p to s step p : f(k) = 0 : next k
>10  c = c+1
>11 next i
>12 print c;" primes found in ";
>13 t = timer-t
>14 print t;" seconds"
>15 end
>
>run
1899 primes found in 0.383333 seconds
>
```

Chipmunk BASIC comes with examples like this one. Just tell the kids that they can learn to write games.

relatively easy language to learn and was an excellent introduction to the fascinating world of programming, logic, fault diagnostics, and printing rude messages on screen in your local highstreet Dixons.

This means *Chipmunk BASIC* is ideal for schools everywhere, especially as the nice man who wrote it doesn't want any money for his trouble. Admittedly for that price you don't get a proper manual with the program, but there's a *SimpleText* document explaining most commands to get you started. Highly recommended for educating the young and as nostalgia for the old.



HACKIT

A utility that hacks shareware programs to get rid of annoying shareware messages without paying the fee.

by the formula $(OG-FG) * 131.25$ where OG equals $(SUM(SG \text{ points} * Amount)/5000) * 0.75 + 1$ and FG equals $OG - ((OG - 1) * (Yeast \text{ attenuation}\%))$. Wow. All that effort to work out how many pints it'll take to make you throw up in your neighbour's garden. I'll try trial and error.

Cindy's Recipes

COOKING

Recipeware

If your consuming passions lie more towards food than drink then despair not, because there's a recipe book for you. *Cindy's Recipes* is a delicious HyperCard stack that contains hundreds of recipes for everything from breads and vegetables to meat. And if you like broccoli and have an oven, you're in luck because there are three broccoli casserole recipes.

The recipes are varied and well-presented, although with the disappointing omission of any pictures. And Cindy won't be buying a QuickTake camera from her registration fees: she's asking for more recipes as payment. I sent her my favourite – Liver and Apricot soufflé.

The problem is that if you're like me and need to constantly refer to the recipe book during cooking, you'll

have to move your Mac into the kitchen. This is not as inconvenient as you might think, because Radius is soon to launch a NuBus blender as the first in its new kitchen peripheral range. Summer will see a toaster adaptor for the CD-ROM drive.

As you read through the stack, you can add the listed ingredients to a built-in shopping list. You can print this out before journeying to the nearest supermarket, although you could just take your PowerBook. This will enable you to sneer at those who merely bring a calculator.

It can even keep an eye on your calorie count for the weight-conscious, similar to *BrewMeister's* useful ability to keep an eye on the alcohol level for the unconscious.

Creator Changer 2.5

UTILITY

Freeware

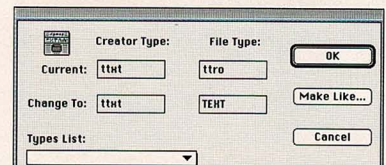
Now here's a very useful little utility. Every Mac file has two hidden codes: one tells your Mac which program created it, while the other details what sort of file it is (for example, TIFF graphic, text, spreadsheet, cake). Like a mother hen, your Mac tries to protect you from such complexities and doesn't enable you to access these codes in the normal System software.

With *Creator Changer* you can see and edit these codes. Why would you want to? Well, the creator code instructs the Mac which program to open a file in. So say someone gives you a bunch of graphics created in *Color It!* that you want to open in *Photoshop*. If you double click them, providing you have a copy of *Color It!* the Mac will choose that program to open them with. By changing the creator code you can get the Mac to think they were created in *Photoshop*, and so by default it will open them in that program. Clever, eh?

The other code controls file type.

Let's say you had a text file that you can't open: by changing its file type code to TEXT you can open it in any word processor, even if you might get some garbage mixed in with it.

You can manually discover and alter these codes with *Creator Changer*, but it includes features to save you the bother. You can tell it to make one file the same as another specified file, or you can automatically change the codes on a batch of files. This program definitely deserves a place in your arsenal of problem solving programs.



Solve your format problems instantly – turn these read-only *SimpleText* files into standard *SimpleText* files in seconds with *Creator Changer*.

Bomb

EXTENSION

Freeware

If you found an Extension on the Internet going by the name Bomb, with no Read Me document at all, would you download it and pop it in your System Folder? Well, your daring reporter Derek Smith took the risk on your behalf.

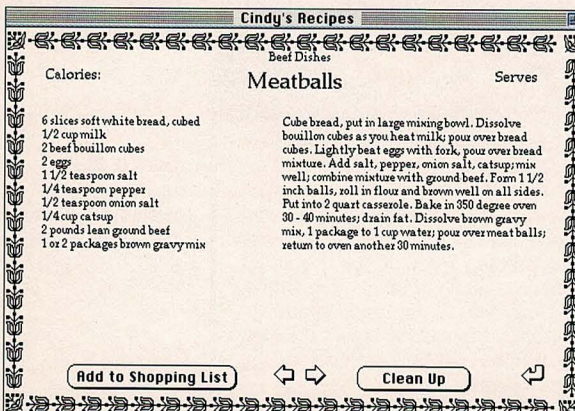
If you choose to follow suit, the next time you restart your Mac you'll get a System error message telling you that you've just lost all your files. Hah hah, it's a joke Extension. How very side-splittingly amusing.

Think of the endless enjoyment to be had putting this in someone else's System Folder and causing them to have a heart attack. If someone is so desperate as to spend their time writing this rubbish, they should at least have the courage to put their name on it. It's not big and it's not

GET A LIFE

A HyperCard stack detailing all the many interesting outside hobbies that you can indulge in.

Perhaps the author of *Cindy's Recipes* should join with the author of *Barnyard Ark* to write a program listing endangered species and how to cook them.



Combat aid

ROLE PLAYING

Freeware

Combat Aid will interest role players. I don't mean executives at training seminars practicing how to fire people humanely; I mean people who play fantasy role playing games such as *Dungeons & Dragons*. Now, it

would be very easy of me to poke fun at people who want to pretend to be elves or wizards, and spend ages painting little lead figures. So I will.

This utility isn't a game in itself: it just helps to calculate the results of mass battles. If 200 lightly armoured dwarfs take on 50 axe-wielding ogres, who will win? Answer: the company that charges a fortune for those little lead figures. That aside, this program will generate a random battle and sort it all out for you without the tiresome need to

Combat Aid demonstrates that if there's one thing sadder than indulging in role playing games, it's using a computer to indulge in playing role playing games.

roll brightly-coloured 20-sided dice.

If you read the documentation, though, you begin to see the sadness of it all. It tells you that if you particularly want one side to win you can halve its number of attacks; or alternatively play the battle again and again until you get the required result. It's a bit like the election techniques used in some South American dictatorships.

Instead of wasting your time with *Combat Aid*, you could just as easily go out and buy a copy of the excellent games magazine *arcane*, which is published by... er, us actually. And by the way, if anyone fancies a game of *Rune Quest* in the Bath area, let me know. Just phone MACFORMAT and ask for the saddy with no friends in the corner.



A system error has occurred, and you have lost all of your files.

Oh Shit

If you're mad enough to install an anonymous Extension called Bomb in your System Folder, you've been eating too much cow.

pretty simple rumour. If you do keep it you're obliged to pay a dollar. And you have to ask why anyone would pay to read rumours they know are untrue. Mind you, Britain's best selling newspaper isn't *The Independent*, if you know what I mean.

YOU'RE RUBBISH

A program that randomly generates very libellous comments about Bill Gates' dress sense and the quality of Walt Disney films.

Continued on next page

clever. Now the time I put a Startup screen of a nude on the Mac about to be used for the managing director's presentation: *that* was funny...

Delayed Startup Items

UTILITY

Shareware \$8

Tucked away in your System is a folder called Startup Items. Anything put here will automatically open when your Mac starts, so it's a useful place to keep your diary or word processor. Good idea – but in practice there's a problem. Ironically, the faster Apple makes its Macs, the longer they take to actually start up. To wait further while your Startup items open can be frustrating, especially if your Mac is restarting after yet another crash.

This utility might just be the answer you've been looking for. It creates another folder called Delayed Startup Items in your System Folder. Anything placed in here will open when your Mac starts up, but only when there has been a period of inactivity.

This means that you can get on and use your Mac as soon as possible, but your files will open when you stop to ponder the vagaries of human

impatience. A useful option is to have them open quietly in the background rather than usurping your current application. This means you'll often not even notice it happen. This is particularly useful for me as I have *Netscape* as a Startup item, and it always takes ages to log on to my opening home page at <http://www.annsummers.com> (which bizarrely is a genuine site... apparently).

RumorMill

HUMOUR

Shareware \$1

This might be a contender for a Startup item on your Mac. Every time it's launched it generates a rumour about who's going to buy Apple. Sound silly? Well, maybe – but it can't be any sillier than the buyout rumours that have been printed in the Mac press for the past five years. They've reported that Apple is going to be bought by IBM, Intel, Sun and Sony (among others – mainly companies with short names. I mean, no one's so much as mentioned Matsushita).

Admittedly the originality and biting humour starts to wane after a while, and it can take ages to generate a

KillFinderZooms 1.4

UTILITY

Freeware

Each new release of the Mac operating system enables you to further custom-

Generating rumor...

03/28/96

SEATTLE, WA—Unnamed imaginary friends tell us that Motorola will buy out Apple Computer Inc. at a price of \$27 per share. Imaginary friends agree that this deal is absolutely true.

Apple officials have refused to comment on these "rumors."

Generating rumor...

03/28/96

NEW YORK, NY—Inside sources tell us that Sony will buy out Apple Computer Inc. at a price of \$18 per share. Sources agree that this deal is a done deal. Analysts have been predicting the demise of Apple Computer since 1985.

Apple officials have refused to comment on these "rumors."

Wait until the computer has been idle

for 20 seconds before opening

items from the Delayed Startup Items folder.

Cancel

OK

Put a delay on your Startup items using the cunningly named *Delayed Startup Items*.

RumorMill generates rumours about who will be buying Apple. However, they've missed the obvious one – Microsoft. It'll happen, believe me.

Admittedly this dark box may not seem too exciting, but *Warp Factor* does look a lot better when it's moving on your screen.



ise the way it works and looks. But one thing you still can't do is turn off the way windows zoom when they open and close. Sure, it's pretty and friendly but it can be slow, especially if you open a lot of windows at once.

This program turns that feature off, speeding up your windows. But there is a price. It performs this feat by hacking your Finder file – you know, the one that makes your Mac work; the one that you should never touch.

To alleviate the danger this utility will only hack a duplicate of your Finder, thereby forcing you to make a backup. A good feature and a good program. Don't delay, start saving those nanoseconds today.

Warp Factor 1.4 SCREEN SAVER

Freeware

Warp Factor is a screen saver module that replicates the one special effect that pervades all movies featuring spaceships – the sight of stars whooshing by as you travel at many times the speed of light. It's designed to work with the *After Dark* screen saver, a program with the dubious distinction of being probably the most-pirated software in history. I was once given a pirated copy by my local Apple dealer to install on the 20 or so Macs that my school had just bought!

If you don't want to buy *After Dark* and are far too honest to just 'acquire' a copy then don't worry, because *DarkSide* is a freeware screen saver capable of running *After Dark* modules. Even better, it doesn't use any Control Panels or Extensions so there isn't any danger of System conflicts that cause your Mac to crash.

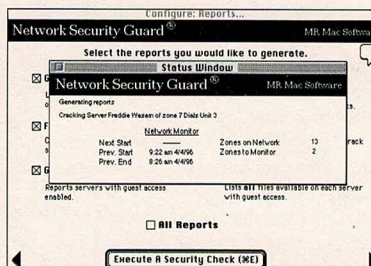
The module itself is enjoyable, giving the impression of flying through space – or at least the impression of what Hollywood reckons it would look like. You also have the ability to look out of the windows to the sides of the ship, or indeed out the back. Of course, budding Einsteins might ask that if you are flying away from a star at more than light speed, would you see the light emanating from it at all?

Network Security Guard 3.1 NETWORK UTILITY

Shareware \$289

We don't normally feature profes-

URL Manager helps you to keep records of where you've been on your trips around the Internet – or Net as it's known to its friends.



Network Security Guard can search the network at night, which is of course completely pointless because most Macs will be switched off.

sional network utilities in the shareware pages – partly because they are of little interest to the majority of MACFORMAT's readers, but mainly because there aren't any. And at \$289 *Security Guard* hardly fits the shareware ethos. So why has it been included? Well, because it performs an exceptionally useful task.

Security Guard will scan your whole network looking for Macs that have File Sharing switched on. It then compiles a report about each Mac, detailing items such as which files are shared and whether guest access is enabled on the shared folders.

This is very useful to administrators, although it's hardly thrilling. But, more importantly, it lists whether the Mac has a password entered in the Sharing Setup Control Panel. It can even check the password to see if it could be easily guessed...

This is important because many users don't grasp the full security risks of turning on file sharing. For instance, say Martin Brown starts up File Sharing on his Mac. In the Sharing Setup Control Panel, he types his user name in the owner field, but doesn't bother to enter a password because he only intends to share a single folder that doesn't contain anything particularly confidential. What he doesn't realise is that if I were then to log on to his Mac using his user name, I don't need to enter a password, and I now have complete access to his entire hard disk.

This utility checks for such lapses and can even e-mail the offenders a

URL Manager INTERNET

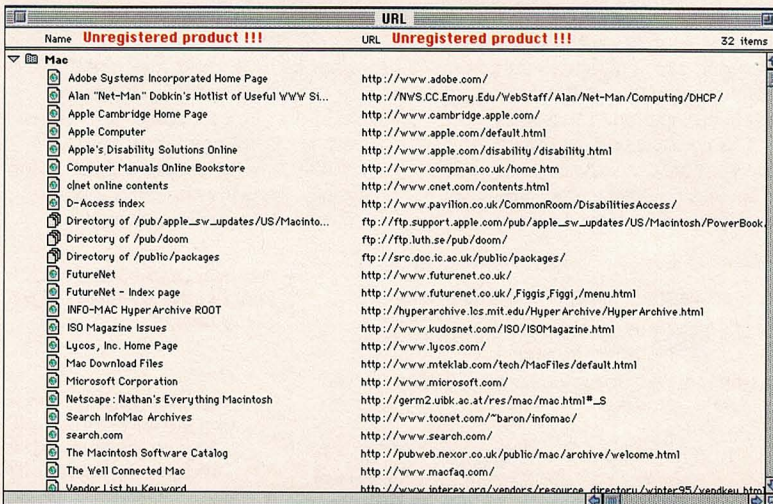
Shareware \$15

The Internet is big. I mean really big. You may think that it's a long way down to your local bulletin board, but that's nothing compared to the Internet. There are plenty of sites that help you find your way round (try the excellent <http://www.search.com>), but how do you remember where you've been? Just what was the address of *Donkey Breeder's Home Page*?

Web Browsers like *Netscape* have a built-in bookmark facility to keep shortcuts to all your favourite sites, but if you are a real hard core surfer this is not enough. So along comes the thrillingly-titled *URL Manager*. For the uninitiated, URL stands for, er... Internet address, in Polish.

This manager gives you a window in which you can create folders, much like a standard Finder window. To add a URL to the window you simply drag a link from your browser onto the appropriate folder. That's all there is to it. Inside the folder you'll find a file that contains the address. You can double-click a file to open that site in your browser, or the Drag-and-Drop fan can drag it back onto any browser page to go straight there.

It's certainly very simple to use and is slightly more sophisticated than the built-in bookmarks. But it's not really any faster, and unless you have a 20-inch monitor it's a hassle to keep swapping between your browser and the manager. It might save you a couple of seconds here and there, but let's face it, if you're in a hurry to access the Internet, you're going to be jolly disappointed. **MF**



TELEPHONE

A cunning new application that replaces e-mail with a system that involves actually talking to real people – wierd.

CHATUP

An artificially intelligent program that can generate a printout of useful chat-up lines suitable for all occasions – do you come here often?

VIRTUAL LIFE

A murder mystery virtual reality game that involves going outside and communicating with suspects and other people.

NESCAPE

This *DocMaker* manual explains why the Internet is pointless and why you'd be better off going to the library instead.

Is the Mac changing too quickly? We've had several letters from MACFORMAT readers expressing concern about the rapid transition from the old-style Macs like Quadras and LCs to the gleaming new PowerMac with PCI expansion slots.

Last issue we showed you affordable ways of upgrading your Mac, giving it extra RAM and making it run faster. But do you feel there's too much pressure to upgrade your Mac's RAM and speed? Should more software authors concentrate on creating programs that Macs with less memory can use?

We'd like to know what you think; but here's one reader's thoughts on how to cope with the ever-changing Mac...

Ordinary People

More powerful Macs are emerging all the time, but do you actually need the latest and greatest? A MACFORMAT reader offers a thoughtful perspective.

1 Many of the changes that Apple makes are in response to customer demand.

This is a key point to understand. Apple would love to keep the Mac the same: it costs hundreds of millions of dollars in research and development, marketing, and manufacturing costs to update software and hardware. But people want the latest technology and if Apple doesn't give it to them, then Microsoft and Intel will. So Apple makes changes not to abandon old customers, but to attract new ones. Your real complaint is not with Apple but with your fellow users!

2 Update your system to suit your needs. You don't need the latest, greatest, RAM-hogging technology. A perfect example of this is my father. He has a Mac LCII with System 7.0, 4Mb of RAM, an 80Mb hard drive, and he has *WordPerfect 1.0* and the old *Lotus 1-2-3* for the Mac. It's slow, it's horrible for QuickTime (which, as a result, is not installed on his machine), and he doesn't do CD-ROM. But he has a good set-up that suits his needs, which are pretty much limited to word-processing.

The same logic applies to System upgrades, if you do decide to make them. Consider the case of the QuickDraw GX and PowerTalk parts of System 7.5. If you don't need them, don't install them – and you'll save yourself 2Mb of RAM. The lesson is clear: buy what you need, and don't spend a penny more beyond that.

3 Budget for obsolescence.

This is my most common advice to fellow users. As writer David Pogue

said in one of his Macintosh books, computers become obsolete after four years. That's not exactly true: no computer is obsolete as long as it runs the software you need. But let's face it: if you want to keep up with the latest technology, you have to pay for it. I remember when I bought my Mac Plus back in 1987. It had 1Mb of RAM, a small black-and-white screen, and a noisy 20Mb hard drive. It's practically a toy next to my Quadra 660AV.

That's why I tell people: if you buy a computer, you should squirrel away £24 a month so that four years later you're able to get a new machine. I know that's a financial pain, but if you're serious about your computer commitment, you must do it.

4 Be thankful for little things.

Today's user has one thing going for him: prices for computers and peripherals have dropped dramatically in the last three years. Hard drive prices have fallen by an incredible 70% since 1992. RAM prices have also fallen, although not quite as much. And Mac prices have dropped sharply too. A Performa 5200 with 8Mb of RAM, a 500Mb hard drive, software, and built-in monitor costs half as much as my black-and-white SE/30 cost me back in 1989.

Even when compared to PCs, the

Performa 5200 is a good price. If you do want new equipment or a new Mac, at least the stuff is now more affordable.

6 The changes Apple is making are the key to its longevity.

It's time to get philosophical. Perhaps Apple is moving too fast for you. But consider the case of the other machines for the ordinary person: the Amiga and Atari's ST and Falcon. Those machines were updated at a snail's pace. In fact, Apple has released as many versions of the PowerMac in the past 18 months as Commodore did Amigas in ten years. And look at where those machines are now.

Yes, it's hard to keep up with what Apple is doing to the Mac. But at least there's something to keep up with. Believe me, there's a lot of ST owners who wish they had your problem.

Alan Skerrett
Washington, DC

IT WASN'T US

Opinions expressed on this page are those of the author, not necessarily those of MACFORMAT or Future Publishing Ltd.

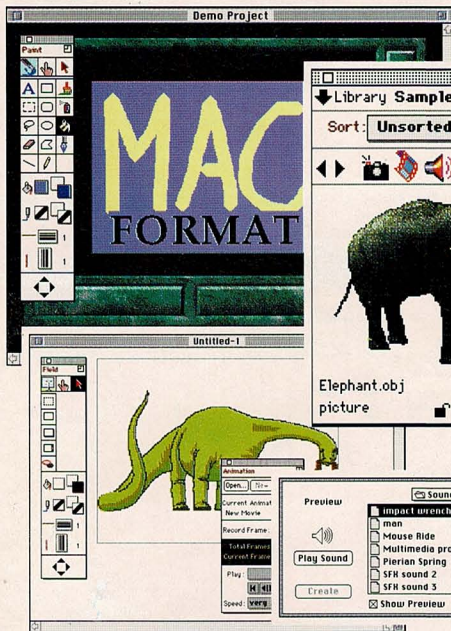
YOUR VIEW

If you have an opinion on this or any other Mac issue, write to 'Talking Point', MACFORMAT, 30 Monmouth Street, Bath BA1 2BW. Plain or ASCII text on disk would be nice but isn't essential. We reserve the right to edit your grammar, but won't alter the sense of your opinions.

MACFORMAT OFFERS

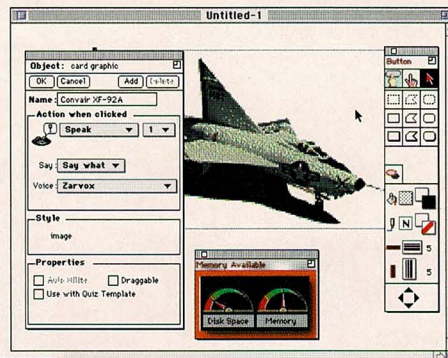
MACFORMAT offers you the best Mac products at the best prices. All prices include VAT and delivery – no hidden extras! Don't miss out on some great deals – order now by mail or phone 01225 822511.

Digital Chisel 2.0



Digital Chisel scored 89% in our round-up of multimedia authoring tools in MACFORMAT 36.

It's a deceptively easy way to create interactive multimedia presentations. Using a simple point-and-click interface, it enables you to integrate full-colour graphics, sound, animation and hypertext hot links.



Digital Chisel boasts built-in basic paint and draw tools, the ability to import or create animations, full control over text fonts and styles, sounds and even speech. It needs an LCIII with 4Mb of RAM (PowerMac with 8Mb recommended) and System 7.0 or later.

You won't find Digital Chisel in the shops, so take advantage of this special MACFORMAT offer now!

Price: £89
Order code: MCFDCH

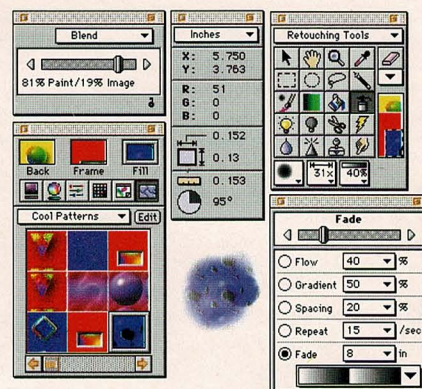
COLOR-IT!

Version 3.0.4

The latest version – exclusive

We gave away Color It! 2.3.5 on MACFORMAT 31's Cover CD-ROM and Disk (if you missed it, see the opposite page to order a copy). Now we bring you the exclusive chance to buy the NEW Color It! 3.0.4, to give you image editing features on a par with those of the mighty industry standard, Photoshop. This latest version of Color It! offers new, powerful features, including:

- Fully-native PowerPC version
- CMYK four-colour separation
- RGB channel editing
- Extrude and drop shadow filters
- User-defined Undo levels (up to 16)
- Levels and Curves filters
- Unsharp Masking filters
- Bezier Brush tool
- Kernel Brush tool



If Photoshop is beyond your budget, then the latest version of Color It! is a serious alternative.

- Crop tool
- Live filter previews
- Palettes combined to save screen space
- ... and much more.

Color It! version 3.0.2 rated a storming 88% in MACFORMAT 28. So don't miss out on this opportunity. This up-to-date version is available nowhere else in the UK, and Color It! 3.0.4 is available from MACFORMAT for a limited period only. It can be yours for only £49.95, inclusive of delivery and VAT.

Price: £49.95
Order code: MCFCT3



The Dig

Gorgeous cut scenes, atmospheric sounds... the movie that never was. Does Spielberg's asteroid puzzler come up to scratch? Karen Levell jets off into space...

FROM THE GUY WHO BROUGHT YOU...

Previous LucasArts classics have included *Day of the Tentacle* (rated 94% in MAC-FORMAT 33), *Full Throttle* (85% in MAC-FORMAT 37), and the unforgettable *Monkey Island* series. Not that they're remotely like this in style, but they're all rather good.

Tarrantino may have stormed back-street USA, but in Hollywood, Spielberg is still king. And with a CV that stretches from *ET* to *Schindler's List*, there are few who would deny his claim. But even a sovereign must bow before the god of economics, and so goes the story of *The Dig*.

It was originally envisaged as a movie, but Spielberg was almost forced to abandon his project when Hollywood's accountants shook their heads and tutted loudly at the dollar cost. Filming an adventure set on a weird alien world, with zero-G space-walks and a bizarre alien spaceship, was simply too expensive for the movie moguls to bear.

Still, there's more than one way to skin a cat, or indeed shoot a script. Enter LucasArts and *The Dig* – the

spin-off for a film that never was.

It's a shame really. If the cut scenes dotted about the game are anything to go by, it would've made a great film. You play Commander Boston Low, the leader of a hastily assembled NASA crew. An asteroid is on a three-week collision course with Earth and it's up to you to set the nuclear charges that will push it into a steady orbit around the planet. Unfortunately, this is an asteroid with its own agenda, or rather the agenda of a far distant alien species. No sooner has your team descended into the asteroid's hollow surface, than the asteroid turns itself into a spaceship and vanishes into the back-end of nowhere.

It's a great opening, filled with drool-worthy QuickTime videos of the Space Shuttle soaring above a blue-limned Earth, cartoons of crowded press conferences and underlying it all a swelling orchestral score. Compelling, magical and pure Spielberg.

Then the game proper begins and the whole thing starts to plod. Well, not plod exactly, but after the wow factor of the intro sequences you can't help but be disappointed by the standard mouse-clicking adventure that follows. You trudge around beautifully rendered stills, picking up whatever objects will fit inside your inventory and clicking on anything that won't; you talk to the people in your party, and try to fit the objects you've found into unlikely orifices; you fry your brains trying to solve



Some of the settings for *The Dig* are truly gorgeous, but the blobby rendering used on the main sprites leaves a bit to be desired.

puzzles and open up new areas of the game. Most of all, though, you desperately search for ways to trigger a new cut scene and advance the plot.

Unlike previous LucasArts adventures, such as *Day of the Tentacle* and *Sam and Max*, *The Dig* doesn't offer instant rewards. The manic humour has gone, and the gap really hasn't been filled. Non-sequiturs have been replaced by profound statements, and the gags

have been transmuted into in-character ruminations.

This isn't to say that serious adventures can't work. It's more a question of the system you use, and the reward it doles out. If you think about it, *Flashback* is an adventure, it just uses the mechanics of a platform game to give the player small achievable goals while solving the overall mystery. Closer to home, *Star Trek: A Final Unity* [of course, Karen being a total Trek-head would have to mention this, wouldn't she? – Ed] splits its major puzzle – the location of the Unity

If the cut scenes dotted about the game are anything to go by, it would've made a great film



The shuttle makes a speedy getaway as the nukes tick over into boom time.

IT'S A MIRACLE!



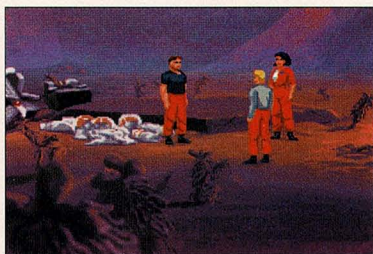
1 You're don't get very far into the mission before the German geologist Brink is accidentally killed while digging into the aliens' nexus.



2 Low finds some green glowing crystals with strange powers. According to the aliens' museum records, they should be able to reanimate Brink.



3 A few seconds later, Brink comes back to life, but is he the same man? Somehow you get the feeling that Low's life just became a whole lot trickier.



It's true – there really are places in the universe without a McDonald's. Still, rumour says McD's will be applying for planning permission as soon as they find the intergalactic land registry office.

Device – into loads of different missions, each of which is intercut with shipboard adventures. It might not sound like much, but it gives you a sense of getting somewhere.

A *Final Unity* also enables you to choose which

character you want to play – in *The Dig* you're stuck with Commander Low all the way. True, you can use your communicator to call up the other members in your party – Luther

Brink, a German geologist, and Maggie Robbins, a quick-tempered journalist – but for the most part you're on your own, exploring an almost entirely deserted planet.

Another way in which *Star Trek: AFU* manages to make its story work is by offering you choices, both in terms of dialogue and overall command decisions. Each choice results in a slightly different outcome, and reflects your approach to the game. *The Dig's* system is far more restrictive and linear. True, you get a choice of topics to quiz your team about, but no choice about the way you ask them, or how you should proceed. Nor does it help that many of the lengthy discussions take place in extreme long-shot – this isn't radio, after all. That said, the dialogue is well scripted, and the underlying concept is intriguing. You really do want to find out what happens. You just know that after its brilliant opening, *The Dig's* finale is going to be out of this world.

The only problem is getting there.

The Dig's puzzles should come emblazoned with a government health warning – they'll jellify your mind, suck on your soul and stretch your nerves beyond snap-back point. And at the risk of sounding like a poor loser, you have to say that the odd one or two are just a tad unfair. Admit it, a puzzle that relies on you working out a new keyboard command is a bit below the belt.

The Dig does have a few tricks up its digital sleeve, though. First, there's the beautiful settings and deeply atmospheric sounds, which even the blobby painting of the main sprites can't completely dispel. Second, there's the fascinating concept of unravelling an alien psychology through its abandoned artifacts and hieroglyphics, and of course, the Spielbergian storyline.

Another big bonus is the fact that it runs on both PowerMacs and Quadras. You still need a double-speed CD-ROM drive and 8Mb of real RAM – virtual memory and software expansion

such as *RAM Doubler* won't do – but at least your processor stands a fighting chance. And then there's the spectacular packaging...

The Dig's box is a marketing executive's dream – a fold-out top, a flashy iridescent logo and a whole forest worth of hold-it-in-place cardboard. But as cricketers are wont to say: never mind the box, it's what's inside that counts. And while there's nothing wrong with *The Dig's* tackle, it somehow fails to bowl you over. **MF**



Low introduces his team to the press. It's in these cut scenes you'll really feel Spielberg's influence.



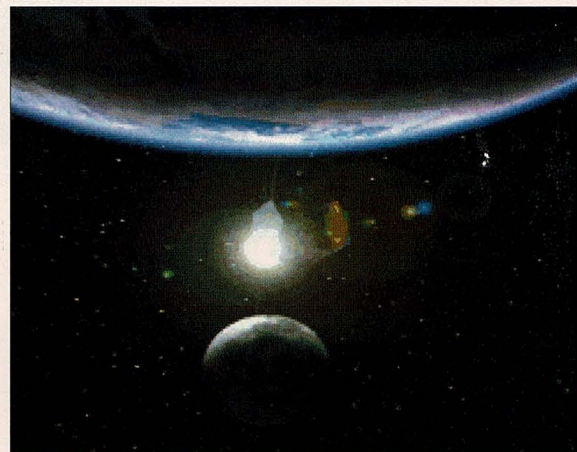
These displays are activated with a simple click. But after that click, simplicity gets the heave-ho as you try to fathom the aliens' almost totally incomprehensible hieroglyphics.



It might look like a killer zit, but it's actually a nuclear warhead. You need this to alter the asteroid's course and put it into a safe orbit.



Low, Robbins and Brink descend into the interior of the asteroid Attila, but as with almost every aspect of *The Dig*, things aren't quite what they seem.



The Dig is stuffed with visual treats, such as this limned shot of planet Earth.

THE DIG

Price: £44.99. **Out:** now.

Requires: Quadra or better, 6Mb of free RAM (8Mb for PowerMac) 6Mb of free hard drive space, System 7.1 or later, 256-colour monitor, double-speed CD-ROM drive.

Contact: Virgin on 0171 368 2255.

GRAPHICS

Sumptuous in parts – shame about the blobby-looking sprites, though.

84%

SOUND

Crisp, haunting and without any sudden, ear-blasting volume changes.

91%

GAMEPLAY

A bit plodding and linear. The puzzles are real toughies, though, and it is a great concept.

79%

MACFORMAT RATING

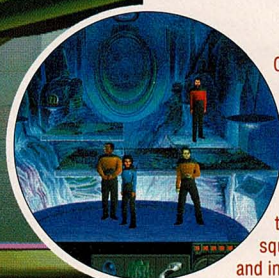
83%

KAREN VS. GARRICK, PART ONE

'While *The Dig* is an excellent game,' writes Karen, 'Star Trek: The Next Generation – A Final Unity (reviewed over the page) offers more in the way of fun. Of course, Garrick Webster (who reviewed it) disagrees, but then he's always been a cynical old buffer and, sad to say, he probably thinks that liking *Star Trek* just ain't cool...'

Star Trek: The Next Generation – 'A Final Unity'

The now-discontinued TV series finds new life on the Mac as a point and click adventure. Garrick Webster finds out the game matches the quality of the show...



One of the first decent puzzles appears after around four hours of play. It's the vanishing squares puzzle and involves playing musical trinkets in order to make hidden walkways materialise.

recognisable. When the game opens and the bridge of the Enterprise appears, even the most precise perfectionist will find the sharpness and accuracy of its

As in the TV series, a great deal of the so-called action takes place from the bridge of the Enterprise. From here you have access to all the Enterprise's data and functions, as well as the main crew members.

Fans of *Star Trek: The Next Generation* television series will find *A Final Unity* pleasantly entertaining. After all, it's an adventure game that tries desperately to mimic the cult science fiction show, and succeeds in pretty much every respect. *Star Trek: The Next Generation – 'A Final Unity'* looks, feels and sounds like the TV show. In fact, playing the game is like watching one very long episode.

The feeling of authenticity is helped by the fact that all the main stars of the show had their voices digitised for the game. When Picard, Riker, Troi, Data, Worf, La Forge and Dr Crusher speak, they sound exactly as they do on TV. The real McCoy, as it were (though he's not in it – this is *ST:TNG*). The instant feeling of familiarity will certainly thrill fans and even impress occasional viewers.

Likewise, the sprite versions of all the characters are all instantly

pixel personae pleasing.

Then there's the plot – every bit a *Next Generation* story. The game begins with a Garidian Warbird chasing a smaller Garidian vessel into Federation space. The Enterprise intercepts the two craft and you, playing the role of Picard, must decide what to do. If you dispatch the Warbird and take the three rebels from the shuttle aboard, you'll find yourself embarking on a quest to find a lost scroll containing political philosophy that is the key to social justice on Garid.

Further into the tale, you must evacuate a damaged orbital power station, free a kidnapped biologist on the planet Morassia, chase Ferengi smugglers and make a first contact with a long-lost Garidian colony on Frigis. Each of these adventure missions demands that you beam down an away team of four crew members. Solve the mysteries and puzzles you find, and you're pointed

DISEMBODIED VOICES...

The inclusion of the actual voices of the stars of the show, though a key feature for fans, has led to some overlong conversation sequences where all you get to do is click the mouse. Here's an excerpt from the dialogue. If you find it intrinsically interesting, you'll like the game.

Picard: Is there any way to shut down the power core?

Player: Click.

La Forge: There's a fail-safe mechanism which is supposed to jettison the core automatically in an emergency. (Click.)

Riker: I'd say that this qualifies as an emergency. Why wasn't the core jettisoned? (Click.)

La Forge: The only way to prevent it is by manual override. Someone has to be there to stop it. (Click.)

Picard: That means there's someone still alive in there. Data, are you picking up life signs? (Click.)

Data: The station's shielding is interfering with our sensors. I cannot tell if any of the crew are still alive. However, life support is still functioning. But power readings indicate that it may fail at any time. (Click.)

Picard: Dr Crusher. (Click.)

Crusher: Crusher here. (Click.)

Of course, this exchange has been quoted entirely out of context. It's meant to prepare you for a mission. However, while you're wondering when you're actually going to get to do something, you're furnished with heaps of unnecessary detail. (Click.)

in the direction of your next destination. Gradually, the grander plot reveals itself. Without giving too much away, a doomsday weapon is involved and yes, the Romulans are up to no good again.

A Final Unity is packed with Trek motifs: transporter beams, phasers, photons, the Holodeck, torpedoes, warp drives and all sorts of fantasy technology exist here, as do the catchlines 'Make it so' and 'Sensors indicate...'. Races like the Romulans, Vulcans, Klingons and Ferengi appear, and all the nuances of the Enterprise and the Federation are faithfully replicated. You can even navigate the Enterprise, control it in battle, and diddle with the Engineering settings. Alternatively, you can delegate these responsibilities to Worf and La Forge.

While fans of the show will love this game, if you are more ambivalent about *Star Trek*, then you are likely to be less enamoured. In the early stages

ENTERPRISE IN ACTION

Whenever you set a new course or encounter something in space, you get to see a small rendered animation of the Enterprise flying. Unfortunately, these animations only appear in a quarter screen window. Here's a few of them:



Set course for Morassia.



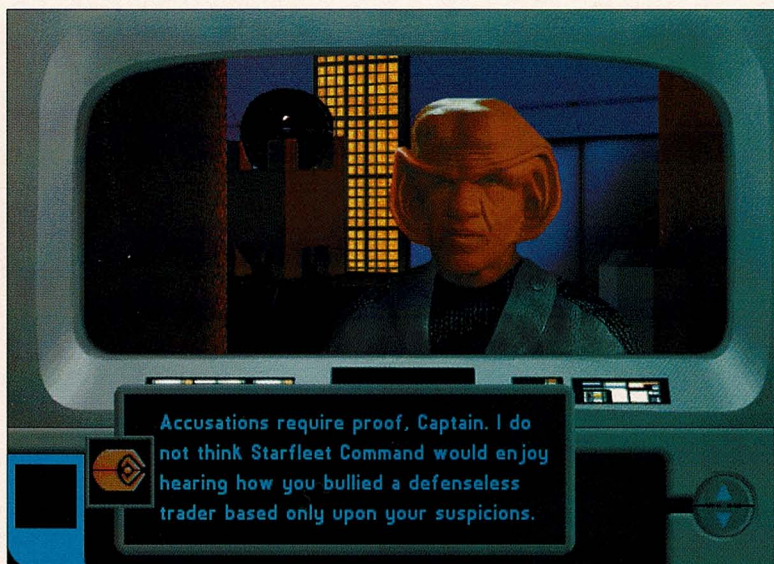
Blocking a Garidian tractor beam.



Approaching the Mertens Orbital Station.



Horst III, here we come.



Picard adopts hard bargaining tactics with Aramut, a dodgy looking Ferengi trader who has been smuggling exotic species around the galaxy. He can tell you a thing or two about Romulan activities.

of the game, the voices of the main characters are nice for authenticity, but you soon begin to feel they've been gratuitously over-exploited. Conversations between the characters go on far too long, while you just click between the lines. The dialogue is meant to provide information about your mission, but the speech for speech's sake can become over-informative, spoiling the adventure.

This isn't helped by some of the graphics. The near-perfect rendering of the bridge doesn't always stretch to the mission settings. Planet surfaces and space stations are all colourful and full of detail, but the attempt to make them appear 3D by scaling the character sprites as they move into the screen isn't convincing. And they walk so yawningly slowly you'll be wishing for a fast-forward button.

The looping sound effects can also be very annoying. In one scene, the buzz of static from a lab instrument becomes infuriating. Elsewhere, a birdlike beast squawks so repetitively you'll be tempted to wring its neck. And, for some reason, the overall quality varies. In places the ambient sounds and music are clean and pleasant; in others they're glitchy, bleepy and full of static.

There are three difficulty levels at which you can play: Ensign, Lieutenant and Captain. On the Ensign setting, the characters will give you plenty of hints as to what you should be doing. If you want decent puzzle-play adventuring, don't use this

setting – it's far too easy. At the more difficult levels, you're given fewer clues, and you get to choose your own away teams from the available crew. So, if you're going to encounter wounded people, Dr Crusher is a good bet, while Riker fancies himself as a diplomat and Data and La Forge are useful for technical situations.

But even at its most difficult, *A Final Unity* is a bit too simple in places. There are too few puzzles, and most of these are so straightforward you may not even recognise them as such. Only after three away missions does the level of challenge pick up, and towards the end things start to hot up.

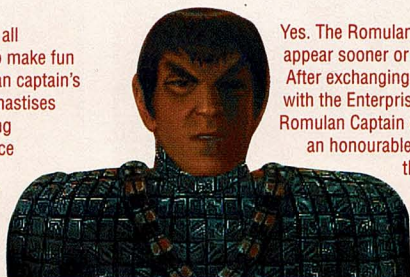
Of course, you can add depth to the game by attempting to take control of the Tactical and Engineering decks. Normally, responsibility for these is delegated to Worf and La Forge respectively. But taking over these decks proves so difficult that it's hardly worth it. Between all the dialogue and plodding missions, you hardly get to grips with what it is you're supposed to do anyway.

Despite its manifold small failings and long periods of dullness, *Star Trek: The Next Generation – 'A Final Unity'* is successful mainly on the strength of its plot. But from an adventure gaming point of view, the challenge is too thin. If you're a serious Trekkie, add 20 per cent to the mark given here and set your wallet to stun. If you're not blinded by the ideology of the *Trek* cult, you might be better off buying *The Dig*.

MF



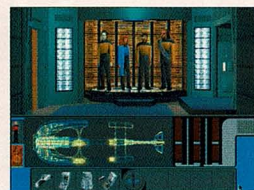
Picard resists all temptation to make fun of the Gardian captain's haircut and chastises her for entering Federation space uninvited.



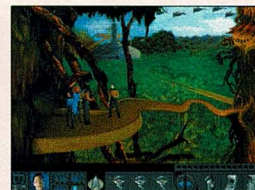
Yes. The Romulans had to appear sooner or later. After exchanging photons with the Enterprise, this Romulan Captain opts for an honourable exit from the game – hara kiri.

BEAMDOWN COORDINATES SET

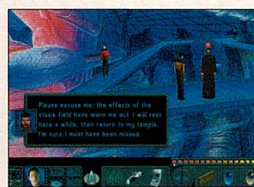
Three of the beamdown missions in *ST:TNG – 'A Final Unity'*. Most of the adventure play takes place during these missions.



It all starts on the Enterprise in the Transporter room. On the easiest setting, the away team is already selected. On the harder settings you have to choose which crew members see action.



On a sunny day Worf, Data, Crusher and Troi enjoy a stroll on the nature preserve planet of Morassia. They're actually looking for the kidnapped biologist, Dr Hyunh-Foertsch.



Beneath the desert surface of Frigis, ancient Chodak technology is revealed. Here, Data is quizzing a cult leader who has been trapped in this cavern.



And finally, there's Allanor, a long lost Chodak administrative centre. Why are you here? Do any Chodak remain? You'll have to wait and see – we won't spoil it for you.



STAR TREK: A FINAL UNITY

Price: £39.99. **Out:** now.

Requires: Quadra (33MHz) or better (PowerMac recommended), 12Mb of RAM, 4Mb of free hard disk space, System 7 or later, 256-colour monitor, double-speed CD-ROM drive.

Contact: Microprose on 01454 893900.

GRAPHICS

Colourful and varied, but the animations are slow.

83%

SOUND

Great speech, glitchy effects.

85%

GAMEPLAY

Slow and too easy, or too hard. Slightly redeemed by the interesting plot.

65%

MACFORMAT RATING

76%

Fly the ship into battle yourself using the Tactical screen, and the Gardians will most likely give you a pasting.

KAREN VS. GARRICK, PART TWO

'Of course, Trekkies like Karen Levell may try to convince you that *The Dig* is less fun than *A Final Unity*. But being a devotee of the series, perhaps she is too forgiving of the game's shortcomings. *The Dig* is interesting, challenging, atmospheric and fantastic. And I'm sure, were it not for the brainwashing influence of television, Karen would agree.'

Al Unser Jr Arcade Racing

The smell of high octane fuel, the throb of powerful racing engines, the thrills and danger of speed on the Indy Car circuit – what more could you want? Well...

BURN RUBBER

While there's currently a lack of racing games for the Mac, there are some exciting new releases planned: look out for *Indy Car Racing II* and *Nascar* from Papyrus.

INDY WHAT?

If you didn't know already, Indy Car is the American equivalent of Formula One racing. Those Americans just have to be different, don't they?

Who? The name Al Unser may not mean much to you and me, but it means a lot to fans of the Indy Car circuit, where he's had great success over the past few years. Now 'Little Al', as he's known to BSKyB commentators, has given his name to the first racing game to be released for the Mac in years.

This is straight out arcade racing, and there's none of the strategy or managerial elements found in other racing simulations. This is a fact emphasised at the start of each race where you hit the ground running. Your car is under computer control while the countdown takes place. As soon as the count reaches one, you're on your own.

There are three modes of racing in the game: Championship, Timed and Practice. The first takes place across an entire season's racing and puts you up against all the other competitors on 15 original circuits. Timed mode sees you racing against a time limit on the Indy Car circuit of your choice. If you fail to pass under a check point before the timer reaches zero then the race is

over, but if you make it, your time limit is extended. Practice mode simply lets you familiarise yourself with a particular circuit or get a feel for your car.

Despite the fact that a new racing sim hasn't been released for the Mac in years, *Al Unser* still seems a very 'no-frills' game: there are no spectacular crashes or crunching pile-ups and the cars just bounce around. The scenery hardly varies throughout the 15 courses, and objects are mostly made up of untextured polygons, giving everything a flat and lifeless feel. That's done for the sake of speed, but on anything less than a PowerMac (even a 660AV – hardly a basic Mac) the cars have a slightly sluggish, Sunday-drive-in-the-country feel to them, rather than the blood-pumping rush you'd hope for. The sound effects reach truly dreadful proportions. Instead of the roar of a mighty engine, you're treated to what sounds like a hair-dryer chewing a banana.

You've had to wait a long time to go racing on your Mac and, despite all its faults, this is as good a racing game as you can get right now. The 15 courses



Sharp corner ahead! On the straight, all the cars seem to have equal speed. It's on the corners that you get the chance to make up ground.

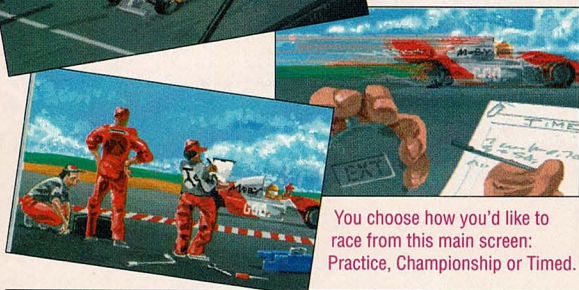


A view from the back of the field. All the essential information, such as speed and revs, can be found on your dashboard.

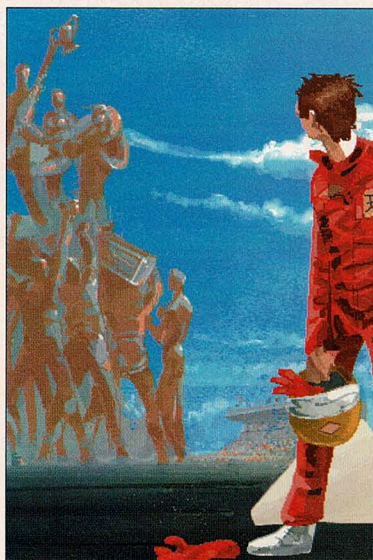
do provide a challenge, and on faster machines the game is quite playable. If you really can't wait any longer before you burn rubber, then try your hand at *Al Unser*. However, if you're a hard-core racer, you might be better off waiting for one of the up and coming releases from Papyrus. **GRAHAM BARLOW**



You get a choice of car to race and in some ways it's just the same as the real thing. Spot the gratuitous advertising on this model.



You choose how you'd like to race from this main screen: Practice, Championship or Timed.



To the victor goes the spoils, while the loser gets nowt. In the words of Al himself: 'All the races are worth the same amount of points and they are each as important as the next'.

AL UNSER JR RACING

Price: £29.99. **Out:** now.

Requires: Quadra or better (PowerMac recommended), 5Mb of RAM (more recommended), 11Mb of free hard disk space, 256-colour, 13-inch monitor, CD-ROM drive.

Contact: Mindscape on 01444 246333.

GRAPHICS Unless you've got a Power Mac, prepare to be disappointed. Similar landscapes on each course mean things very quickly begin to look dull.	55%
SOUND More of a hindrance than a help.	45%
GAMEPLAY On slower machines, the cars become unresponsive, but things improve dramatically if you play on a faster Mac.	75%
MACFORMAT RATING 75%	

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Island Casino

Long to feel the heat of the island beat? Desperate to wave your virtual wad about, learning to gamble in a tropical island paradise? Oh go on then...

THE CHOICE IS YOURS

Island Casino offers both of America's usual gambling protocols – Vegas and Island. The differences are subtle, almost cosmetic, but extremely important if you're a seasoned gambler. Apparently.

Another gambling game. Great. The phenomenal success of games like *Marathon*, *Theme Park*, *Doom 2* and *Sim City* have shown unequivocally that Mac gamers are just dying for more casino simulators. And to get them, why should you bother with all that reasonably priced, convenient shareware, when for a mere 30 quid you can have the same thing, slower and in a big box? There is no demand for gambling games. They are, however, exceptionally cheap to program, take very little to design and are bound to shift some units.

With that initial slap across the cheeks, it's time to rank *Island Casino* on the tedium scale reserved exclusively for gambling games. Good point number one: there are 25 different games on offer within *Island Casino*. These include Blackjack, American and European Roulette, Craps, Video Poker and Baccarat, and the number is bolstered by different versions of the same game and a multiplicity of slot machines. Good point number two: for each of the major games there is a grainy QuickTime instruction video. If you've always wondered what was going on with those dice in *Diamonds are Forever*, here's your chance to have the mysteries of Craps explained.

But there the defence rests. The problem with the



(Above) You can play poker on a machine on your computer. (Below) Slots of fun. Sigh.

gambling in *Island Casino* is that it just isn't real. If you have ever had a company expense account, you'll know that spending someone else's money is not as exciting as spending your own. Gambling with someone else's money – a no-lose situation but you can't keep the winnings – has all the excitement of a cold shower. If you visit a casino, it's not for the inherent enjoyment to be had playing

Blackjack, but for the thrill of the risk. Casino games are designed with gambling in mind; without it, and the associated risk of real loss, they're pretty dull.

No matter how much virtual window dressing you pile on a game, limited gameplay remains exactly that. It doesn't matter, for instance, that you can go back to your room in the El San Juan – the virtual hotel that plays host to *Island Casino* – order room service, take a hot bath and listen to the stereo. There is absolutely no reason for you to do this and in terms of gameplay, the days of sitting back and watching QuickTime movies for fun are long gone.

Island Casino could have



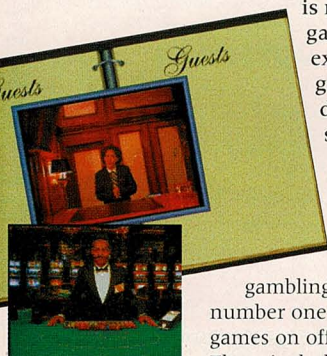
Take a virtual sauna with a virtual friend in your virtual hotel room. Whyohwhyohwhyohwhy?

been far better if the time its designers spent piling on all the useless extras had been employed improving the game interface. Instead, while the playing tables are lush, the point and click manoeuvring of chips and the sluggish response of the computer croupier are frustrating in the extreme. While other computer-controlled players do turn up to challenge the bank, there's no rivalry or competition, and the lack of a multiple player option leaves you to a solo, and an ultimately pointless, stockpiling of electronic dollars.

The idea of the game as a gambling tutor is good, but the explanatory videos show only the mechanics of each game, missing out the subtleties. If you're interested in gambling, you'll already know these rules, and the game offers no opportunity to learn about tactics, odds and gameplans. For the price of *Island Casino*, you could buy several books covering the subject in much greater depth.

Having said all that, *Island Casino* is roughly a thousand times better than the truly execrable *Virtual Vegas* (reviewed opposite) but then so's a case of aggravated piles on a 30-mile bike ride. A much better idea would be to make use of shareware, meaning you'll never have to pay too much for games like this again. Now, surely it's time to do away with these dull low-budget games and go for something more imaginative.

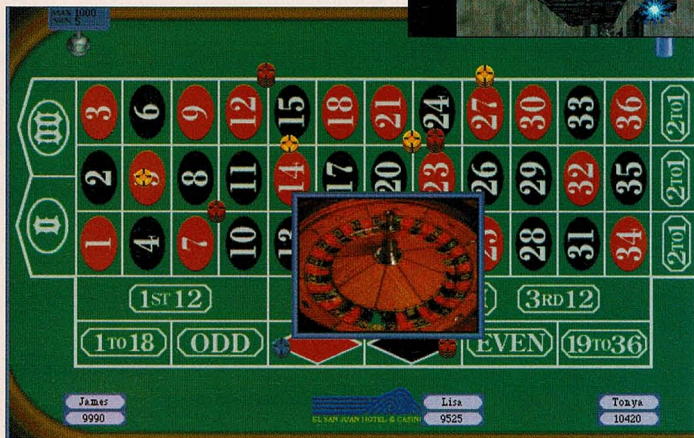
JAMES ASHTON



This man's name is Archie and he'll tell you all about the game of Blackjack. Nice moustache, Archie.

WEB SITE

You can sample all of GT Interactive's current game releases and preview upcoming titles at <http://www.gtinteractive.com>



Playing roulette can be a bit confusing at first (it's not as easy as it looks in the movies) but the on-line tutorial helps a lot. It won't win you any hard cash though.

ISLAND CASINO

Price: £29.99. **Out:** now.

Requires: Quadra or better, 8Mb of RAM, System 7 or later, 256-colour monitor, double-speed CD-ROM drive.

Contact: GT Interactive on 0171 2583791.

GRAPHICS 59%

Nothing special. The QuickTime quality leaves a lot to be desired and the game has a low-budget feel.

SOUND 55%

Voice synchronisation is patchy. As for other effects... well, it's a quiet sport.

GAMEPLAY 63%

Lots of games and some useful tutorials make this better than the average casino sim, but it's still a slow and painfully unimaginative effort.

MACFORMAT RATING 60%

Virtual Vegas

Is this proof that men will do anything if there's the promise that, at the end of it, a woman will take off her clothes?

Virtual Vegas is, without doubt, the worst commercial game currently available for the Mac. The unacceptable face of commercialism and the heady stench of con-trick combine in a piece of software so empty, so banal, so staggeringly unfun that its release by a reputable software company seems almost sinister.

Despite its promises – 'an oasis of adventure', 'richly landscaped virtual worlds of interactive excitement' – *Virtual Vegas* is simply a blackjack simulator. You start with \$500 credit and, via the clunkiest interface this side of MS-DOS, gamble to accumulate more. The game ends when, after five minutes, you start to hanker for a game of Ludo.

But the true exploitative nastiness of *Virtual Vegas* takes the form of the 'gorgeous virtual dealers'. These QuickTime movie apparitions are the blackjack dealers and, dressed in the bits of the catsuit that Michelle Pfeiffer rejected, their job is to deliver chat-up and put-down lines between and during rounds. The packaging and the girls themselves suggest that if you 'play your cards right', they might deign to have virtual sex with you. The fact they don't doesn't really matter; this is just the first instance of pornography with clothes on. Sorry, virtual pornography with clothes on.

Lines like 'I like a man with a big wad' and 'I'm an expensive girl... [quick glance down at cleavage] These are real, you know,' delivered without

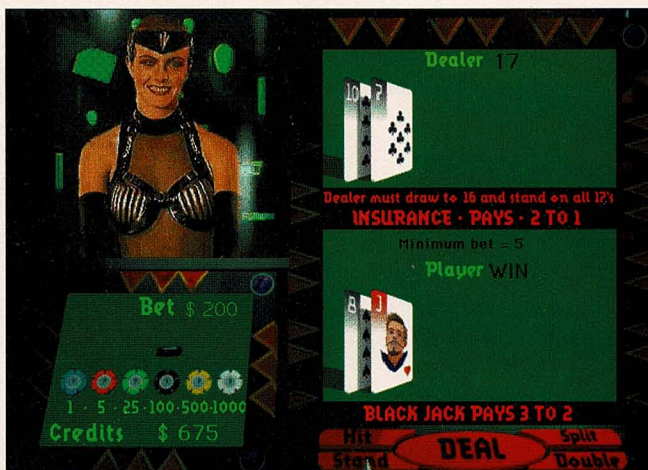
a trace of irony are offensive to anyone but the most ardent top-shelf browser. In an astonishing display of ineptitude, the oldest, easiest marketing trick in the book, the fact that sex will sell anything, is comprehensively fluffed. This sort of stuff wouldn't arouse the most amoebic-brained adolescent mind.

When you tire of the three leather-clad cliché machines and their three all-but-identical blackjack terminals (they differ only in the amounts of virtual money you can bet), you might, as the packaging suggests, want to take a walk down the 'beautifully

rendered 3D corridors'. The one corridor available houses the exit and the entrance to the Forum Shops. These are still 'under construction' but will soon open via the Internet. What they'll sell is a frightening prospect.

And that's it: a bad blackjack simulator with a wooden veneer of sexuality. *Virtual Vegas* is barely a game. Cynically packaged, it's designed to sell to the gullible. As Macs establish more of a leisure user base, more low-grade, parasitic PC software will make the jump. From now on, the price of software freedom will be eternal vigilance.

JAMES ASHTON



Virtual pornography is creeping onto the Mac. This leather-clad babe might keep you from falling asleep during the most tedious game ever to appear on the Mac. Or not.



One of three blackjack machines. They're all identical, of course, except for the maximum and minimum bets allowed on each.

VIRTUAL VEGAS

Price: \$21. **Out:** now.
Requires: LCII or better, 4Mb of free RAM, System 7 or later, 256-colour, 13-inch monitor, double-speed CD-ROM drive.
Contact: Computer Express in the US on 00 1 508 443 6125; fax 00 1 508 443 5645.

GRAPHICS The QuickTime video works well enough, but the rest?	25%
SOUND From time to time offensive comments are emitted.	12%
GAMEPLAY Odious, trite, sexist, boring. The thousands of shareware blackjack programs are all better, cheaper and less offensive.	5%
MACFORMAT RATING	11%

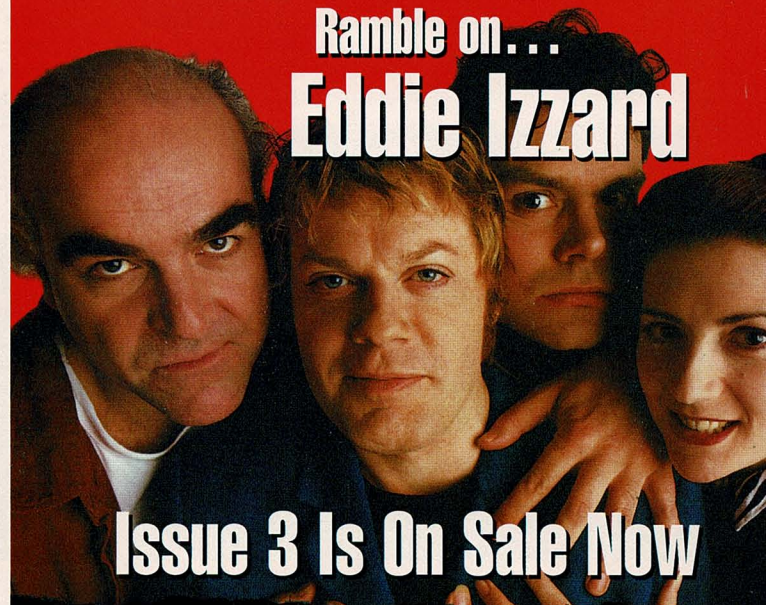
YOU WANT MORE?

The *Virtual Vegas* Web site is located at <http://www.VirtualVegas.com/>. There you'll find the Net Casino (where you can play games like blackjack and poker), information on how to get to Las Vegas, on-line chat forums and more. Or should that be 'and less'?

Comedy Review

"It's like driving a heavy goods vehicle and then driving a mini – when you come to corners you have to do different things. But stand-up and improv – I don't know which one's the juggernaut!"

Ramble on...
Eddie Izzard



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Locus

Warning! Virtual reality game ahead. Critical bile levels at maximum. Standing by...

LOCUS

The mathematical definition of a locus is a curve made by all points satisfying certain conditions, or by defined motion of a point or line or surface. So now you know.

Whichever magazine you read or television program you watch, a little piece of electronic propaganda has been grating up against your cerebral credibility lobe for far too long: 'Virtual reality will change our lives.' In fact no bandwagon has been jumped upon so enthusiastically since... oh... wasn't the Internet supposed to revolutionise our lives by Tuesday? Must check the connection.

Anyway, it's time for the truth injection. Virtual reality (VR) in all its total-immersed, media-spun hyperbole does not exist. What's more (and this is the 100%, God-certified truth), until everyone's home computers are one hundred times more powerful than the best of today's desktop boxes, that's the way things are going to stay.

Locus is a virtual reality game. *Locus* is less fun than a hernia. On your birthday. On a remote island. Nine hundred miles from the nearest medical help. And when I say 'medical help', I actually mean

only a roll of Elastoplast.

If you've seen the film *Rollerball*, you'll have to think less hard to understand the following description. Basically, you're mounted on a jet bike shown in first person perspective, and you have to zoom around a 3D arena – stuck to the walls but unencumbered by gravity – chasing after a ball. Once you've caught the ball, your task is to



Ball control is easy when you've got two electromagnets on your front end.

deposit it in your opposition's goal. To add spice to this blandest of game curries, the other players in the arena will shoot at you with their (sigh) laser guns. If you want to win – that's a big if – you're going to have to fire back.

The background story is that the game of *Locus* is the sole source of sporting entertainment in the future world (does anyone fancy going for a Big Mac instead?). In a Premier League kind of way, the game has come to be dominated by big business, crime syndicates and the like; and if you become a successful player, you'll be poached by progressively bigger and stronger teams. Make it to the top team and you'll have the chance to play on all 12 of the *Locus* game arenas. Your joy will be unconfined.

Okay, it's a simple idea somewhat lacking in imaginative-bolt-from-the-blue status, but the same's true of a lot of games. Let's face it, *Marathon* isn't divinely inspired, nor *Maelstrom* for that matter – but you wouldn't believe the playing hours they suck in. No, what closes the lid and pulls the chain on *Locus* is the dual-action result of poor game design and low technical accomplishment. It's not fun and it doesn't work.

Take gameplay: because the game arenas are 3D (it's like being stuck on the inside of a giant, convoluted toilet roll) and have no set co-ordinates for up or down, it's simply far too confusing to keep track of where you are at any one time. Successful games mirror real life experiences – that's what imaginative play is all about. *Locus* is so far from any human exper-

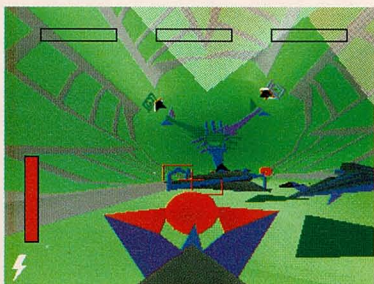


Even if it did play more smoothly, *Locus* would still be fatally flawed as a game.

ience it only confuses. And confusion remains the word writ large when it comes to the technical aspects. Even with a quad-speed CD-ROM drive and a Power Mac 6100 (not the lowest desktop specification in the world), to call *Locus* sluggish would have the world's Gastropod lawyers on the phone in seconds. The sad fact is that you could time *Locus*'s animation frame rate with a B&Q sundial; and while you wait for the screen to update, you have plenty of time to wonder about the rest of the graphics. The arenas lack textural detail (where am I?), enemy bikes lack any kind of detail... As for working out which goal is which – well, which ones are the goals exactly?

There are other features to attract you into playing *Locus*. Yes, you can be confused over an AppleTalk network with up to three other players. Yes, you can generate supersonic headaches by plugging in an overpriced VR helmet (via an overpriced interface). This is all icing on a very stale cake though. Virtual reality isn't now. When it is, with any luck it'll drag better efforts along with it than this sad offering.

JAMES ASHTON



The first objective is to pick up the ball. You'll master this after about an hour's play.



When you haven't got the ball (most of the time), the triangular pointer in your ball catcher will show you its location.



Another arena, another map view, another waste of a good PowerMac.



Should you become confused (as if), you can call up a map view of the arena and player positions.

LOCUS

Price: £29.99. Out: now.	
Requires: PowerMac, 8Mb of RAM, System 7.5, a 13-inch, 256-colour monitor, double-speed CD-ROM drive, 12Mb of hard disk space.	
Contact: GT Interactive on 0171 258 3791.	
GRAPHICS Simplistic, slow, dull. Embarrassingly bad visuals for a PowerMac-only game.	35%
SOUND Dodgy music with the odd accompanying thud or clunk. Has someone left that Spectrum on again?	39%
GAMEPLAY Simplistic gameplay confused to breaking point by a game engine that simply can't cope. No fun at all.	32%
MACFORMAT RATING	
36%	

If there's one thing *Ice & Fire* shows pride in, it's that the game was developed by Vladimir Pokhilko and Alexey Pajitnov. They're the creators of *Tetris*, perhaps the most popular and most played video game of all time. The game packaging tells you so, the manual thrusts the fact into your face, and their names are everywhere. Indeed, the opening words of the instruction booklet feature a salute to Perestroika: 'A joint Russian and American venture, for us *Ice & Fire* is a symbol of a warm relationship between our two countries, so recently locked in an icy cold war.' Erm, right.

Perhaps all this politically correct banter will inspire you to search for that inner karma. Or perhaps it will inspire you to snatch a copy off the shelves in the hope that it will provide something close to the pure, frustrating addiction you find in *Tetris*. Sadly, though, this game does neither.

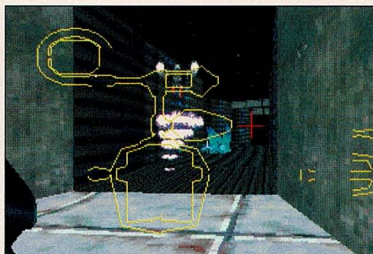
Ice & Fire tries to mimic the 3D, first-person perspective style made famous by games like *Doom* and *Marathon* – with video sequences thrown in for good measure. You must infiltrate an asteroid's cryogenically sealed scientific bases and defrost the inhabitants.



Ice & Fire's 3D design is horribly dated for the most part but it does have some nice touches, such as the escalator and the mirror – your first reaction is to blast your own reflection.

You are equipped with two guns (one hot, one cold) and a thermal space suit – a bit like a wetsuit with built-in Economy 7.

By blasting blocks of ice with the hot gun, you can thaw out the frozen contents. This usually results in an alien Spherid, a creature that looks like a Viking helmet floating above a column of fire, being released from its months in the deep freeze. Give it a quick blast with the cold gun to send it back to the icy hell from where it came. But if you're lucky the melted ice will reveal one of the station's



Once the block of ice (shown in the distance here) is struck by a heat bullet, it melts to reveal either a Spherid, a human or extra ammo.

Ice & Fire

The makers of one of the most timeless games of all rocket into the present with their version of the famous *Doom* style. Can it be as enduring as *Tetris*?

officers, chilled when the place was frozen in its cryogenic doze.

The purpose of finding the station officers is two-fold. First, the level can only be completed if all the officers have been thawed. Second, and more relevantly, the new recruits actually assist you in your mission – such as it is. Some attack Spherids, some wander around activating parts of the station and some just get in the way. The game becomes a constant battle as you defrost officers and attempt to keep them safe from the Spherids' freeze rays, while trying to negotiate a map that's often complicated in itself.

Unfortunately, it's a battle which you won't want to fight for long. *Ice & Fire* is desperately dull, both in appearance and in gameplay. Before entering the 3D action you are supposed to navigate the asteroid's surface in a video sequence that redefines mind-numbing. Press left then right, then fire and pray you make it – luck seems to be the only determining factor. Once a station maze has been entered (an effort which usually drains even hardened gamers' will to live), all that happens is that your ship lands, waits a few minutes and then takes off back into the tedium of the asteroid surface. It soon becomes apparent (thank heavens!) that pressing your Mac's [esc] key is all that is required to complete this level from hell. Why?

From there the 3D game – a tragically sluggish attempt to reproduce the feel of *Doom* – kicks in. Even on a PowerMac 7100/80, the undetailed and predominantly grey display is so slow it's as if time itself has frozen. The controls (essentially left, right, forward and fire) fail to provide any of the subtlety a game like this requires, and the appallingly designed station officers run around like animated blocks of Lego. The only saving grace is the sampled voice used to relay



computer messages. 'This door won't open, you need the green key,' it barks in a tone marked by years of steady tobacco abuse.

Ice & Fire is dire. The gameplay's dull and the graphics verge on a quality usually associated with poor shareware titles – *Tetris* it ain't. **NICK HARPER**

The video sequence that accompanies your (regular) deaths is reasonably polished, but it lacks the sort of variety required to make it bearable time after time.



ICE & FIRE

Price: £29.99 **Out:** now.

Requires: PowerMac, 10Mb of free RAM, 10Mb hard disk space, double-speed CD-ROM drive and System 7.

Contact: GT Interactive 0171 258 3791.

GRAPHICS

Dismal, jerky and grey.

57%

SOUND

A smatter of samples add something to an otherwise dull soundtrack.

62%

GAMEPLAY

Left, right, fire, thaw, freeze, die.

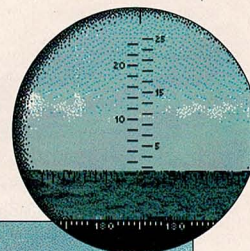
42%

MACFORMAT RATING

53%

Before entering the *Doom*-like subgames, you have to negotiate the asteroid's network of cables (green triangles to the uninitiated). This section is depressingly tiresome, even when you are approached by one of the asteroid's defence drones (the red Lego brick).

Drumbeat: U-Boat II



Another 'worthy' simulation game limps its way on to the Macintosh. Prepare to up periscope as Commander of vessel U142.

WATERY COFFINS

After 1942 and the fitting of ASDIC apparatus (a tracking SONAR machine) to many Allied ships, the men of the U-Boat divisions suffered the lowest life-expectancy of any single group of service personnel during World War II.

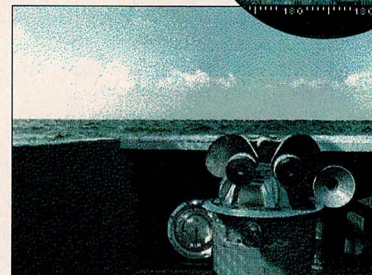
The story of the Second World War German U-Boat fleet reflects the war as a whole. From 1939 to 1943 the U-Boats had the run of the world's oceans, bringing surprise, terror and a watery grave to practically any ship they could find.

From 1943 they became the hunted, harried by Allied forces who had by then perfected their use of sonar location techniques. There could have been few things more terrifying than being crouched silently in the confines of a U-Boat, waiting for a depth charge to find your 300 metre draught.

Drumbeat is a U-Boat simulation game based on the real-life operations carried out by German crews in 1942. Following the bombing of Pearl Harbor in November of 1941, the United States has entered the war and the

on your tail, to think about.

To call *Drumbeat* a game is to do it a disservice: certainly to rate it as such gives it a much lower score than it perhaps deserves. However, if its publisher is going to market it as a simulation game, that's the way it will have to be treated. The truth is that *Drumbeat* is more an academic exercise in submarine warfare with a workable, if uninspired, game interface tacked

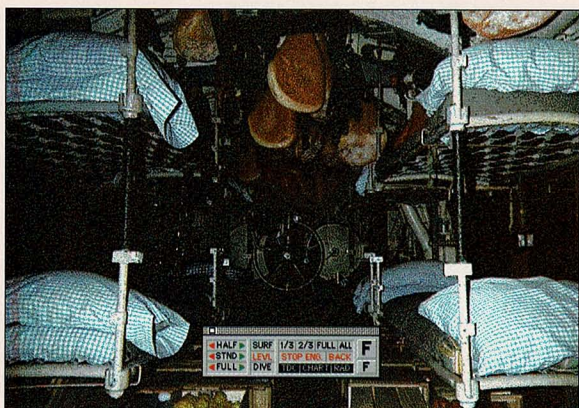


The view from the bridge. You're meant to be able to spot enemy shipping from here.

so that you'll be left baffled without more than a passing knowledge of nautical navigation, physics and the laws of motion. Similarly, your submarine's ability to withstand attack is firmly rooted in reality – one hit and you're sunk. The very real difficulties of spotting distant objects at sea are also replicated: quite often you'll never see what killed you.

It is clear that all the genuine tactics of submarine warfare have been included, but there has been no attempt to demystify them for beginners or provide any on-line help. It is a pity that a small part of the energy so obviously expended in researching the game has not gone into providing some training missions, or even a difficulty setting – anything that might give the novice a chink of light in the impenetrable gloom.

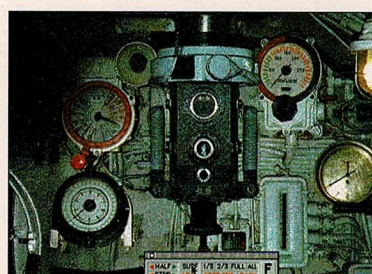
Drumbeat is an excellent simulation (just ask a submarine Captain for confirmation), but a lousy game. If you know your submarines it will have a certain amount of academic interest, but if you prefer to keep your head above water, it will have a very limited lifespan indeed. **JAMES ASHTON**



And this is what beds look like on a U-Boat. This screen serves absolutely no other purpose at all, but it's nice to know it's there.

supply convoys streaming from the US to help British forces have become legitimate military targets. Admiral Dönitz of the German high command is determined to see that as few convoys get through as possible; and as the commander of vessel U142, it's your job to ensure these orders are carried out to the letter.

At the same time you've also got the multiple dangers of Allied aircraft and their submarine-savvy Destroyers, hot

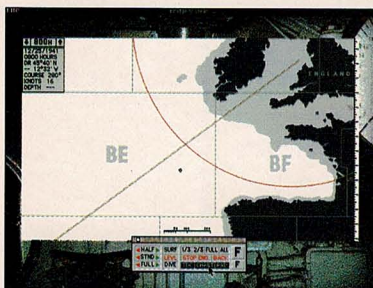


The low resolution graphics make the depth gauges and compass extremely hard to read.

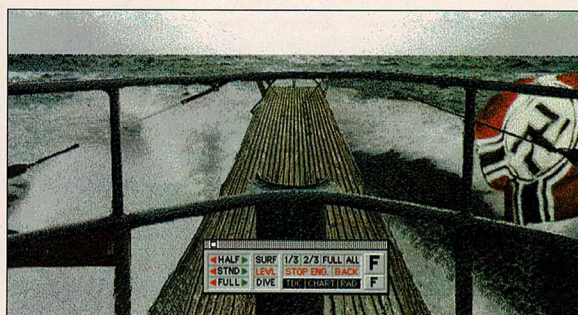
on. The game is such an accurate simulation (down to the reprint and translation of the official German U-Boat captain's instruction and tactics manual from 1942) that you'll need to be an experienced U-Boat captain to have any kind of success with it.

You can command your submarine from the bridge when surfaced, or from the conning tower. In either situation, basic navigational control is handled with simple mouse click commands on a floating toolbar. You'll receive orders over the radio to patrol a particular section of ocean. To monitor your progress, you must descend to the chart room.

At this simple level, *Drumbeat* is by no means difficult and the programmers have clearly worked hard to make the game as accessible as possible. When it comes to engaging the enemy, however, gameplay has been sacrificed for ultra-realism. Aiming and firing torpedoes is carried out in a precisely authentic manner – so much



This is the main navigation chart, vital for locating and then running away from the enemy.



Scan the horizon for enemy ships and back-to-front Nazi flags.

DRUMBEAT

Price: \$42. **Out:** Summer.

Requires: LCIII or better, System 7, 8Mb of RAM, 5Mb hard disk space, 16-colour (or 16-grey-levels) monitor.

Contact: Computer Express in the US on 00 1 508 443 6125; fax 00 1 508 443 5645.

GRAPHICS 25%

Minimalist – mainly still images used as backgrounds with very little animation.

SOUND 19%

Amateur – background effects and speech sound as if they've been recorded in a wind tunnel. Or a submarine...

GAMEPLAY 49%

A simple interface makes basic control easy, but gameplay is too complex and difficult for the average player.

MACFORMAT RATING 40%

Lode Runner On-Line

The re-introduction of a classic arcade game is always bound to provoke heated controversy amongst gaming academia.

The onset of madness for Professor Yami Hashimoto, a brilliant product of the Yokohama Institute of Videogamics, was quite sudden. Certainly no-one suspected it could be connected with the release of a revamped game from the 1980s.

Hashimoto's condition seemed inexplicable until one of his students discovered a previously unpublished paper by the now-debunked professor while helping clean out his office. Entitled *Lode Runner: A Legend of Tomorrow*, the 1983 paper conflicted with many of the principles since expounded by Hashimoto.

Not only did he reveal a taste for Budweiser and the odour of Pop Tart factories, but he composed a most un-Japanese critique of the classic game *Lode Runner*. While many colleagues had scorned the labelling of *Lode Runner* as an 'arcade' game, the young Hashimoto accepted its combination of platform-running and puzzle-solving as noteworthy. 'This game will return when computer technology has caught up with the many possibilities it has to offer,' he concluded.

Its recent return, of course, coincided with Hashimoto's fall into a deluded state. Shouldering a rucksack and clad in a white jumpsuit, the professor runs around Tokyo office blocks muttering about stolen gold and savage monks, apparently emulating the player-controlled character of the game. When Hashimoto believes he has found all the gold on a level, he falls down weeping, pitifully bemoaning the fact that he can't find the magical ladder that should appear to take him through to the next level.

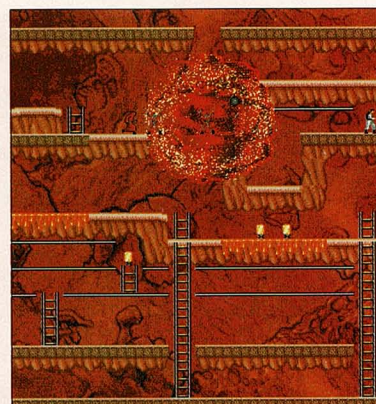
The crazed professor's activities naturally sparked frenzied debate. The controversial Dean Harvey Williams of Berkeley's Modern School of Cyber-



Not only must our Lode Runner avoid the monks and collect all the gold pieces, but to exit this level he must get the key in the lower right and use it in the door to the lower left.

Puzzlery came out in defence of Hashimoto. 'Without a doubt, *Lode Runner* will be as pleasing to play today as it ever was,' he wrote on the wall of a public toilet in Muskogee, Oklahoma. 'The sound is better and the graphics more detailed. I'm not convinced the colour schemes won't annoy, but the puzzle element of collecting gold and escaping monks of limited intelligence is still valid.'

Inexplicably using the same Muskogee lavatory, Dr Madeline J Overmaas, a known Luxembourg School sympathiser, tore vehemently



Another monk bites the dust as our hero trudges on in search of yet more stolen gold.



Player 1 (white) struggles across the gloop tiles while Player 2 (blue) watches in amusement. The 150 two-player network/modem levels seem worthwhile, but are nothing special to play.

into Williams: 'The shallow aesthete will dawdle on detail, but frankly the game never had a decent structure. Simplistic levels continue to crop up even well into it!'

Once news broke of the Toilet Wall Debate, Muskogee became a popular destination for gaming intellectuals: a queue formed outside the said lavatory. By far the most poignant entry was engraved by the Canadian Professor Prescott McLean. 'Wherefore *On-Line*?' he pondered. 'Playing this on a network or by modem seems tedious and pointless. Yes, it's cute, but it's hardly *Marathon 2*.'

Many, including the highly respected Scheltung, think that Professor Hashimoto's madness was sparked by the fact that *Lode Runner*'s second coming, while welcomed by nostalgic devotees, is something less than the legend he predicted it would be. The scrolling console platformers it inspired have eclipsed it, and although it is fun to dip into now and again for some light puzzling action, it's not really as compelling as the original was in its day.

GARRICK WEBSTER



The digging pistol is the Lode Runner's primary tool for evading enemies. He digs a hole, and the oncoming monk falls into it. If the hole closes, the monk dies. You'll also find bombs to use on some levels.

THE ORIGINAL

Lode Runner was originally released in 1982 for the Apple II. Selling well over two million copies, it also became popular on the Commodore 64.

MUSKOGEE, OKLAHOMA

The town is now home to a commune of exiled Japanese gaming students who, against the doctrines of their *Mario* and *Sonic*-loving tutors, believe Yami Hashimoto was right about *Lode Runner*. The toilet wall, once used as a debating arena by all the great gaming minds is now considered a shrine to Hashimoto.

INFINITE LEVELS



A key point of *Lode Runner* has always been its level designer. Indeed, some players prefer playing their own puzzles to those offered by the game designers. This enables you to choose from the eight variously styled and coloured settings, putting any or all of the objects of the game into whatever levels you create. Then, you can test your levels before saving them.

LODE RUNNER ON-LINE

Price: £39.99. **Out:** now.
Requires: LCII or better, 8Mb RAM, System 7.0, 13-inch 256-colour monitor, double speed CD-ROM drive, joystick optional.
Contact: Sierra on 01734 303322.

GRAPHICS
Colourful, well animated, and full of tiny detail. **70%**

SOUND
Adequate music and effects. **59%**

GAMEPLAY
Simple controls yet levels full of brain-teasing challenge. **80%**

MACFORMAT RATING **76%**

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■ **PowerBook 160 4/40**, excellent condition, very light use, manuals included – £550. Chris ☎ 0151 727 1182

■ **LCIII 4/80**, System 7.1, 14-inch colour monitor, keyboard, mouse, *StyleWriter II*, plus manuals, home use, excellent condition – £700 ono. Bristol ☎ 0117 971 7508

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■ **Apple 2200 portable colour printer**, boxed, as new, – £200, save £100. ☎ 01270 586869

■ **Epson GT colour scanner** – £300; **Formac ProDrive SyQuest** drive – £200; **Hewlett Packard HP560c** printer – £150. Steve Hargreaves, Reading ☎ 01734 323566

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■ **200 5.25-inch double density disks** – £10 inc p & p. Matthew ☎ 0181 523 8058 (office hours) or 0973 301882 (evenings)

■ **PowerMac 6100/60 8/540**, System 7.5, 14-inch colour monitor, extended keyboard, manuals – £995 ono; 2 x 4Mb 30-pin SIMMs – £50 each; 4 x 1Mb 30-pin SIMMs – £13 each. Keith, Surrey ☎ 01932 873328.

■ **Printer, mono. Hewlett Packard DeskWriter 510**, boxed, manuals, cables, VGC – £110. Mr Sweeny ☎ 01332 874706 (evenings)

■ **PowerBook 520 8/160**, desktop publishing software, 11 months old – £690 ono. ☎ 01202 429681

■ **Macintosh IIfx 8/80**, 13-inch hi-res monitor, 300e CD-ROM drive, Apple design speakers, keyboard, mouse – £700 ono, will split. Peter ☎ 0181 508 6572

■ **LC475 8/160**, System 7.5, 14-inch monitor, mouse, keyboard, CD-ROM, *StyleWriter II*, loads of extras, mint condition. Simon ☎ 01292 478657

■ **DayStar 25MHz Turbo 040** universal accelerator with co-processor. Fits Mac IIvi, IIvx and Performa 600, still boxed – £130 ono. Don, Cheshire ☎ 01606 352124

■ **US Robotics Mac and Fax** 14,400 bps fax/data modem, all software, manuals, light home use – £100. Paul ☎ 0181 688 8036

■ **PowerBook 160 8/80**, 14-inch

colour monitor, *StyleWriter*, includes all leads and case – £800. Ollie ☎ 01222 224870

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■ **Quadra 840AV 8/1000CD**, 13-inch Apple RGB monitor, keyboard, mouse, microphone – £1,600 ono. Gareth ☎ 01203 679935 (evenings)

■ **StyleWriter** and all leads – £100 ono; *Zoop* game, unwanted prize – £15, both in excellent condition. James ☎ 0131 556 8701 (after 5pm)

■ **Mac Classic 4/40**, keyboard, mouse, System 7.1, manuals, *HyperCard v 2.0*, various shareware items, covers, carrying case – £220. ☎ 0151 608 1536

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Need hands-on help with a Mac problem? Want to swap shareware or freeware, or just meet other Mac enthusiasts? Try a user group near you.

- The SE Essex Mac User Group meets in Southend, second Monday of the month at 8pm. Mike Foy ☎ 01702 468062 or e-mail mac@mikefoy.demon.co.uk (MF38)
- A new first class BBS, Xnet UK ☎ 01992 550733. A local number to all London numbers, devoted to all subjects for problems. (MF38)

- Media Club – the best Portuguese Mac user group. Free on-line help via Telnet International. Please send SAE to Media Apartado 15006-1073, Lisboa, Codex, Portugal. (MF39)
- Australia Queensland Toowoomba Mac user group. 202 Darling Street, Drayton, Toowoomba, Queensland, Australia 4350 or ☎ 61 076 333383 or fax 61 076 333383 (MF39)
- Appel Club Eindhoven (ACE), 80 members, informal set-up, ten meetings a year, fee Dfl 25/yr. Contact Arie Nagel, Puthof 5, 5655 AM Eindhoven, Netherlands ☎ 040 2523879 or e-mail a.p.nagel@tm.tue.nl (MF40)

- New Mac user group, Helensburgh, Strathclyde. Peter Stevens ☎ 01436 676621 (MF40)
- Mac User Oxford – non-profit user group and shareware library, seasonal shareware catalogue, small fee for printing etc. SSAE: 30 Sandfield Road, Headington, Oxford, OX3 7RJ. (MF 41)
- Hampton Court Users Group. Informal group which meets approximately every six weeks to exchange ideas and help each other. ☎ 0181 399 9416 or 0181 940 0673 (MF 42)
- Artists archive and news service. Contact The Research Station ☎ 0181 778 6547 (24hrs) 38,400bps plus Web site at

http://www.metamute.co.uk/r_station (MF43)

Groups are listed here for six issues. The code at the end of the entry is the last issue in which it will appear. Renew your entry by sending in the coupon on page 130. If your group isn't already listed here, send us your details and we'll do the rest. This is a free service for amateur, non-profit-making Mac user groups. MACFORMAT does not endorse or recommend any group and cannot be held responsible for any problems you might suffer as a result of contacting any of the groups advertised here.

- eight months old, superb condition, Colour StyleWriter 2400 + spares, Gravis II joystick, FA-18 Hornet – £1,650. London ☎ 0181 679 6788
- **Performa 600CD** with SVGA monitor. ClarisWorks 4, several CDs, 8Mb RAM, MIDI interface – £650 ono; Hewlett Packard DeskWriter 520 – £160 ono. ☎ 01704 563353
 - **Mac IIsi 5/40**, 14-inch greyscale portrait display for sale – £300 or swap for Colour Classic min 4/80. Shaftesbury ☎ 01747 852561
 - **Hewlett Packard DeskWriter 510**, One year old, very good condition, books, drivers, fonts, roller cleaner, boxed – £80. ☎ 01705 612028
 - **Iivx 20/500**, 19-inch colour monitor, 24-bit accelerator card, keyboard, mouse – £1,300. Sussex ☎ 01424 713207



- **ClarisWorks 4**, original disks – £40. Graham. ☎ 01703 786327
- **Star Trek TNG Interactive Technical Manual CD** – £20; *Crystal Caliburn* – £15; *A-Train* – £10, all boxed, as new. ☎ 01223 277281 (after 6pm)
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- **Monkey Island 2**, boxed, as new – £10. ☎ 01342 843135
- **Rebel Assault 2 CD-ROM**, boxed, mint condition – £25 or swap for similar top title. Stephen ☎ 01268 751426 (after 6pm)
- **Radius Video Vision Studio** for PowerMac, with *Premiere* and *Video Fusion* software. Only six months old, still under warranty. Paul ☎ 01274 739682
- CDs: *Grolier Encyclopedia*, *The Way Things Work*, *Myst*, *Rednex*, *Concertware Making Music 3D*, *Atlas*, *Language Learning with Asterix*, *Peanuts Yearn to Learn*. All unboxed but with documentation – offers inc p&p. ☎ 01273 208249
- **Kodak Photo Access CD** and *VideoShop 3*, all original disks and documentation, but unboxed – £150 offers inc p&p. ☎ 01273 208249
- **Jag 2** – £15; *Ghosts CD*, *Sensory Overload*, *Kings Quest 6*, *Monkey Island* – £5 each, all boxed with manuals. David ☎ 0141 880 6639
- **X-Wing CD** for sale, brand new – £30-£35, will also pay extra cash in exchange for Flightstick Pro. Jonny, Luton ☎ 01582 23920 (5pm to 6pm)
- **Marathon 2: Durandal** (new) – £30; *Populous* – £10; *Syndicate* – £10; *Darkseed* – £10, all VGC, will possibly swap £10 ones. ☎ 01223 561580 (eve)
- **Bitfolio World Maps** – £10; *ClarisWorks 3* – £25; *ColorStation* – £20; *PhotoFix* – £25. Mike, York ☎ 01347 810685

- **Adobe Photoshop 3**, sealed box, unregistered – £250 inc delivery. ☎ 01279 724540
- **Grolier Encyclopedia**, *Myst*, *Daedalus*, *Concertware* CD-ROMs, with manuals, plus several more, will split and sell/swap for *Links Pro CD* or memory. ☎ 0181 386 8932 (after 7pm)
- **Alone in the Dark** – £30; *Flashback* – £20; *Lemmings* – £10; *Monkey Island* – £15; *Prince of Persia* – £20; *Populous 2* – £23; *Kyrandia CD* – £25; *Fate of Atlantis* – £20. Lesley ☎ 0141 840 1641



- **Zoop**, *Populous*, *Critical Path CD*, *Leisure Suite Larry 6 CD* – anything considered. Terry, South Yorks ☎ 01709 543334
- **Performa 450 4/120**, colour monitor, swap for PowerBook 150. Robin ☎ 01865 726392
- **KPT 3** in exchange for latest *Mac Renderman*. ☎ 0131 468 1716



- **The Big Mac Book** by Que – £8; *The Macintosh Bible*, *System 7.1* – £8; *Stupid Mac Tricks* (including disk) – £8. Mike, York ☎ 01347 810685
- **MACFORMAT** no's 1 – 20 including disks – £50. Alan, Reading ☎ 01734 473495

- **Computer magazines**, over 70, mainly on Amiga and PC games. All 1990's – £20 including p&p or £10 collected, or maybe swap old fishing tackle? ☎ 01743 369373



- **Stacker Vid** (disks only), also external hard drive, 160Mb or 80Mb, also other software, such as *System 7.5 upgrade*, *Doom 2*, *Prince of Persia Collection CD* etc. ☎ 0171 630 9302
- **Expert Landscape Garden Design** or similar software package with manuals. ☎ 01332 874706 (eves or weekends)
- **PowerBook** wanted by student, any model considered in good working order. Coventry area. ☎ 01203 317951
- **PowerBook** for student, good condition, battery, charger, power supply. John ☎ 01475 630249 (evenings and weekends)
- **Mac Classic** or LC I/II/III for home use with printer or CD-ROM – will pay up to £379. London only ☎ 0181 698 1379 (5pm to 9pm)
- **Microsoft Works 4** (Mac), complete. Denis ☎ 01604 494664 (home), 01604 715011 (work)
- **StyleWriter II**, urgently needed, buyer must be able to test for use with a Classic. Vicky, Wolverhampton area ☎ 01902 826363
- **Theme Park**, *Syndicate* or *Flashback*, proper versions required. CD-ROM or disk. Peter ☎ 01546 850274 (eves)

UK USER GROUPS

The User Group Council provides a list of all the user groups registered with them. If you wish to contact the Council, ask for John McKnight ☎ 0181 314 5555.

Local user groups:

- Aston University Mac UG, Birmingham area, contact Ray Tier ☎ 0121 359 3611
- Berkshire Mac UG, Ian Burn ☎ 01734 813669
- Blackburn Mac UG, Roger Moreton ☎ 01254 670043
- Bournemouth Mac UG, Barry Cheesman ☎ 01202 615859
- Bristol (BAUD), Malcolm Ingsley ☎ 01454 616846
- Cambridge Apple UG, Ian Archibald ☎ 01223 311157
- Cancer Research/RMH UG, Raymond Henry ☎ 0181 643 8901 ext 4636
- Edinburgh Apple UG, John Beatie ☎ 0131 554 5096
- Gateway UG, Norfolk area, Verne Anderson ☎ 01638 513000
- Glasgow Mac UG, Stephen Broadfoot

- ☎ 0141 339 6646
- Hampton Court UG, Sabre Gilmartin ☎ 0181 979 0262
- Herts/Beds Apple UG, Norah Arnold ☎ 01582 573918
- Highland Mac UG (HIMUG), Scottish Highlands, Bob Warner ☎ 01463 715322
- Liverpool Apple UG, Irene Flaxman ☎ 0151 928 4142 or 0151 949 0307
- London Mac UG, John McKnight ☎ 0181 314 5555
- Mac Assist, Cardiff and district, Nigel Arrighi ☎ 01222 224682
- Midapple, West Midlands, William Watson ☎ 01384 277921
- Midland Mac UG, Worcestershire, Ivan Knezovich ☎ 01299 402631
- North West Apple C C, George Evans ☎ 01270 583714
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- Poole Mac UG, Bob Lister ☎ 01202 684441
- S E Essex Mac UG, Michael Foy ☎ 01702 468062
- Southampton Mac UG, Clive Marklow ☎ 01703 293453

- Southern Mac UG, Salisbury area, Roger Ford ☎ 01722 780102
- Southwest Mac UG, John Elver ☎ 01272 693119
- Staffordshire Poly Mac UG, Mark Stiles ☎ 01785 52331
- Sussex UG, Hastings & E Sussex, Garry Nevin ☎ 01424 714110
- West Midlands UG, Danny Torbica ☎ 01902 336172
- Yorks & Humberside Mac UG, David Vardy ☎ 01423 358853

Thematic User Groups:

- BAPC (Printers), Derek House ☎ 01228 513621
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- Corel Draw UG, Jill Foster ☎ 01509 415101 or 01509 620442
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- Helix UG, John Sandell ☎ 01763 273379
- Independent School UG, Ian Carter ☎ 01252 512151

- LAW Mac UG, Charles Christian ☎ 01379 88518
- Lisa Users Group UK, Sheila Bell ☎ 01367 710453
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- Multimedia UG, Richard Hurley ☎ 01273 834588
- PageMaker UG, David Foster ☎ 01509 415101
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- School Mac UG, Cambridge, Derek Smith ☎ 01945 584146
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Always be absolutely clear about what is included in the price – postage and packing? Any necessary cables, etc? VAT? By law, an advert must say *explicitly* if VAT is not included; if it doesn't, VAT is included. But this could be in the small print – so make sure you read it all! If you're buying in person, check that everything is there and that it all works properly before you leave the shop. If you're buying by mail, ring the supplier first to confirm the price and availability, and ask what your options will be if there should be any problem. Find out when you can realistically expect delivery. Always keep all the receipts and make records of all correspondence, whether it's by mail or by phone.

How to protect yourself

If you are buying goods of more than £100 in total value, use a credit card if possible. That way, if anything goes wrong, you'll be legally entitled to claim against the credit card company as well as the seller, even if the seller's gone bust. You might also get

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If it fails to meet any or all of these three criteria, then you are entitled to return the goods for a refund, receive compensation for all or part of the value, or get a replacement or free repair, depending on the seriousness of the defect. These are the 'statutory rights' that adverts always say are 'not affected' by any extra guarantees. The supplier cannot change or deny these rights.

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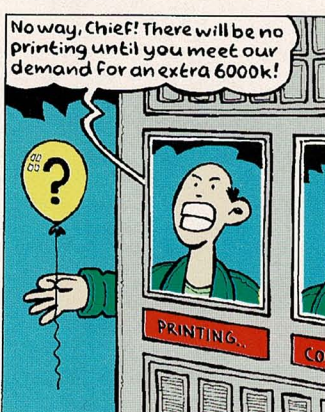
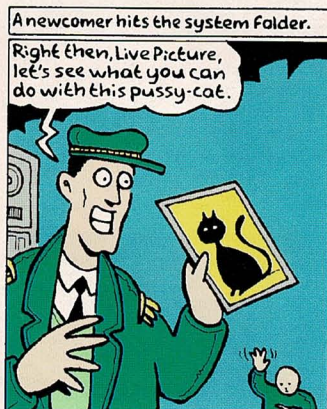
If you're not happy about something, always contact the supplier first and politely explain your problem. Most problems are sorted out at this stage with no fuss. But if yours isn't, put your complaint in writing, clearly stating your problem and including any relevant dates, etc, and send it to the manager or owner – ask for the correct name and job title. Give the supplier a reasonable time to reply – say, ten days or so.

If the problem is still not resolved, you may need to take some sort of legal action to enforce your rights. This need not cost you a lot of money. You should seek advice from a solicitor (ask about the free advice scheme) or from one of the following organisations (check in your local telephone directory):

- Citizen's Advice Bureau;
- Trading Standards Office (listed under your local council);
- Office of Fair Trading; or
- County Court (ask someone there about the 'small claims procedure').

The Classic System Crew

By Bob Lynch



Mr. Memory

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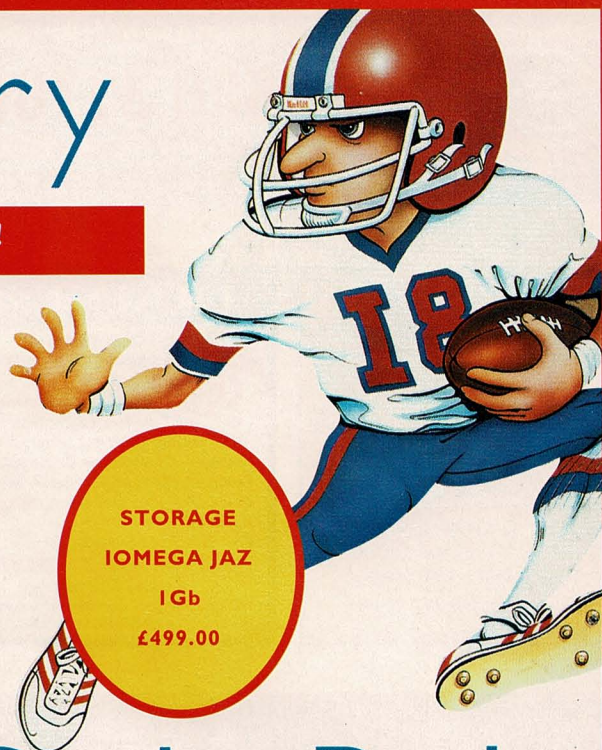
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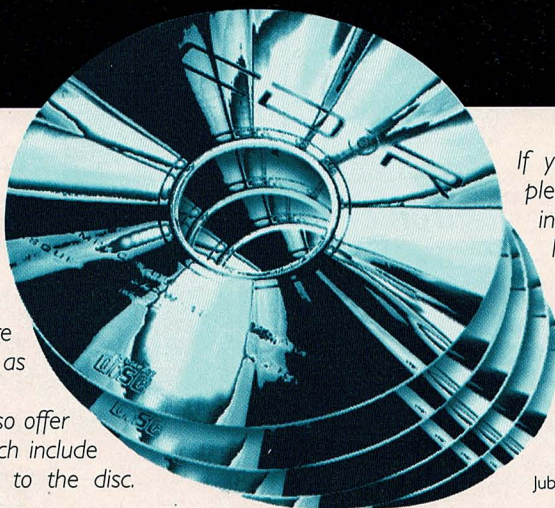
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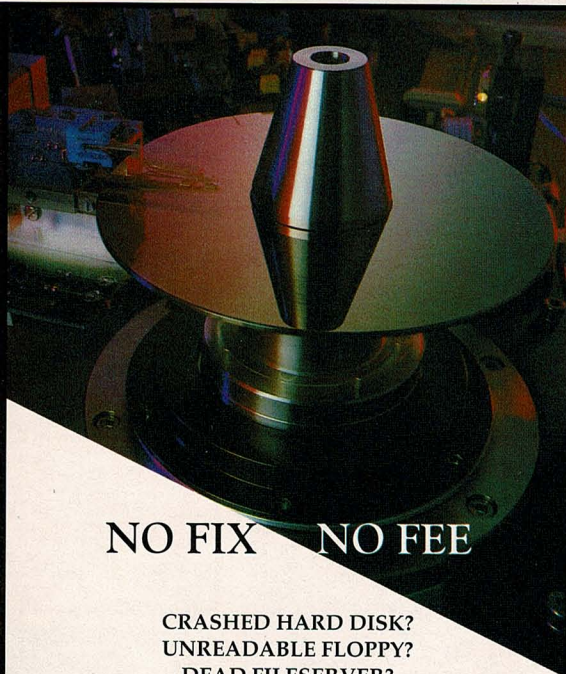
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MACFORMAT

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What's happening? Where's everybody going? Jill? What do you mean, 'FutureNet'?! Frank? You're going to be Art Editor on what? Our sister magazine PC Answers?! Gulp. Best of luck then, both. It'll be awfully quiet without you...
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ABC

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Even tinier than before - the Tiny Zone

Hello and welcome again to Tiny Zone, the section of MACFORMAT that seems to feel the pinch more than most. It's thanks to all the to'sings and fro'sings going on in the 'lannel panel' above - and you should see the list of people who want to be added! We'll find room for 'em all next issue - see if we don't! - because you deserve to know about all the unsung job titles who might (or might not) contribute to this fine magazine, like the 'PR and Publicity' people who work for our esteemed mega-global corporate parent 120 miles away, or the 'CD-ROM Manager' who has never switched on a Mac in his poor PC-blighted life, or the Paper Controller, who at least does something important. But speaking of titles: it's always great to see new Macs, but aren't the model names getting a bit confusing? I mean, a 5300 could be a Performa or a PowerBook, and an 8200 sounds like it should be more powerful than a mere 7600, but in fact it's not - it's got only a PowerPC 601 chip where the 7600 has a 604. It's as bad as '70s Japanese car models, or the old days of the Mac II series, when nobody was quite sure if a vix was better than a ci. It's now almost like shopping for a hi-fi - just ignore all those numbers and check for yourself what each has to offer...

NEXT ISSUE

where it's @

Good stuff on the Net

If you haven't yet taken the plunge into the Internet or you're floundering around, trying to make sense of it all, here's the answer to the really big question: *what's in it for you?* From news to technical support, from comics to software updates, we show you what's on-line and where to find it. PLUS...

What you really need

We review and rate the two real essentials: fax-modems and Internet service providers

Readin' and countin'

More and more multimedia titles aim to teach basic skills of literacy and numeracy. Next issue, our education expert puts them to the test and spells out the results

PLUS 3D wars! *Ray Dream Studio vs Extreme 3D*, head-to-head - the upgraded 3D art classic faces the new-comer from the creators of *FreeHand* and *Director* ■ More tips for combining text and graphics in *ClarisWorks* ■ *Phantasmagoria*, *Space Quest 6* and *Dogz* ■ The latest news

ARE YOU A WINNER?

In MACFORMAT 33, to mark the tenth anniversary of the Macintosh spreadsheet application, *Excel*, we gave you the chance to win one of ten copies of the latest version, courtesy of Microsoft. *Excel 5.0* is now the only stand-alone Mac spreadsheet, and its normal selling price is over £250. The ten names drawn from the cardboard box were: Colin McKinney of Elie, Leven; Mr J A Roberts of Ross-on-Wye, Herefordshire; Graham Allford

of Southampton; Tony Nandi of London SE14; Derek Farquharson of Bournemouth; Arleta Ford of London E9; Peter Watson of Manningtree in Essex; Mr A A Huddart of Chatham in Kent; Helen McCumiskey, who lives in Senningerberg in Luxembourg; and Miss C Brockbank from Keswick in Cumbria. Congratulations to all! And hey, not a single joke about 'XL5' being an old Gerry Anderson series... except for that one.

MACFORMAT 39 goes on sale on Thursday 6 June Available with high density floppy disk or CD-ROM. Ask your newsagent to save you a copy or see page 67 for our special subscription offers

Win one of the latest Apple StyleWriters

If your life is drab and dull, let us revamp it for you. Get into full colour by winning one of two StyleWriters, courtesy of Apple UK.

One of the joys of using a Mac is being able to create gorgeous graphics in the comfort of your own home. But sadly, it's a little impractical to ask people to crowd round the screen to view your masterpiece – two's company, three's an audience, but four is like the black hole of Calcutta. No, the rest of the world won't be able to appreciate your work unless you get a colour printer.

The new StyleWriter 1500 and 2500 inkjet printers replace the 1200 and 2400 respectively. They boast much improved print drivers and support ColorSync 2.0, the new version of Apple's colour matching system.

The compact StyleWriter 1500 uses three colours when printing: cyan, magenta, and yellow. It has a maximum resolution of 720 x 360 dpi (dots per inch) in black and white mode, and 360 x 360 in colour mode. It earns

itself a MACFORMAT Classic Award in our group test this issue – turn to page 75 for all the details.

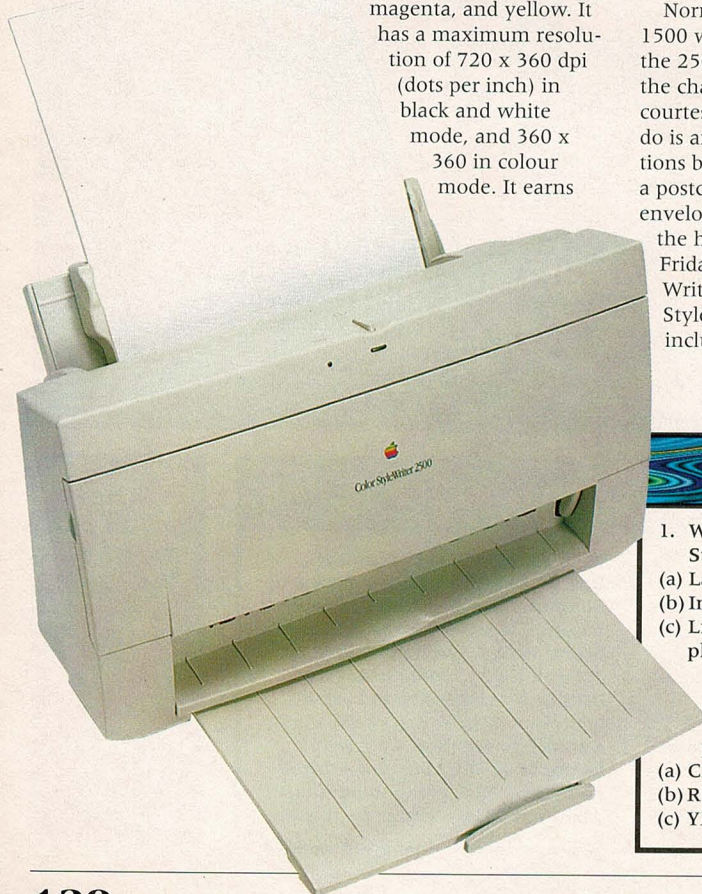
The StyleWriter 2500 is the 1500's big brother and sports full CMYK printing and a 720 x 360 dpi resolution for both black and white and colour printing. We gave it a resounding 84% in our round-up. Both printers come complete with software, external power supply, comprehensive manual, ink and coated paper.

Normally, the StyleWriter 1500 would set you back £276, and the 2500 £363, but we're giving you the chance to win one absolutely free, courtesy of Apple UK. All you have to do is answer the three simple questions below and send us your entry on a postcard or the back of a sealed envelope. The first correct entry out of the hat after the closing date of Friday 14 June 1996 wins the StyleWriter 2500, and the second the StyleWriter 1500. (Don't forget to include your name and address!)



The rules

Employees of Apple UK, Future Publishing and associated companies, and their families, are not eligible to enter. Multiple entries are not allowed unless accompanied by a John Bull printing kit or at least a line of type set in real movable type. The editor's decision is final, no correspondence will be entered into, and there is no cash alternative. Please state if you don't want your name added to a mailing list. **MF**



THE QUESTIONS

1. What type of printer are the StyleWriter 1500 and 2500?
 - (a) Laser
 - (b) Inkjet
 - (c) Liquid-cooled double-helix phase-shift spectrometer
2. What colour model does the StyleWriter 2500 use to produce its output?
 - (a) CMYK
 - (b) RGB
 - (c) YMCA

3. What is the name of Apple's colour matching software, provided with all new StyleWriters?
 - (a) QuickDraw GX
 - (b) ColorSync 2.0
 - (c) Kitchen Sink

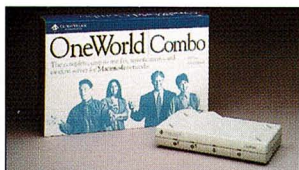
Send your answers (remember to include your name and address!) to: 'I Want to Be a Stylish Writer' Competition, MACFORMAT, 30 Monmouth Street, Bath BA1 2BW. The closing date is Friday 14 June 1996.

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0181 318 1424

Saville
01904 782782

Tasha Computers
0171 602 9444

Technology plc
01925 830404

Trams
0171 630 5858

Trimac
01142 724127



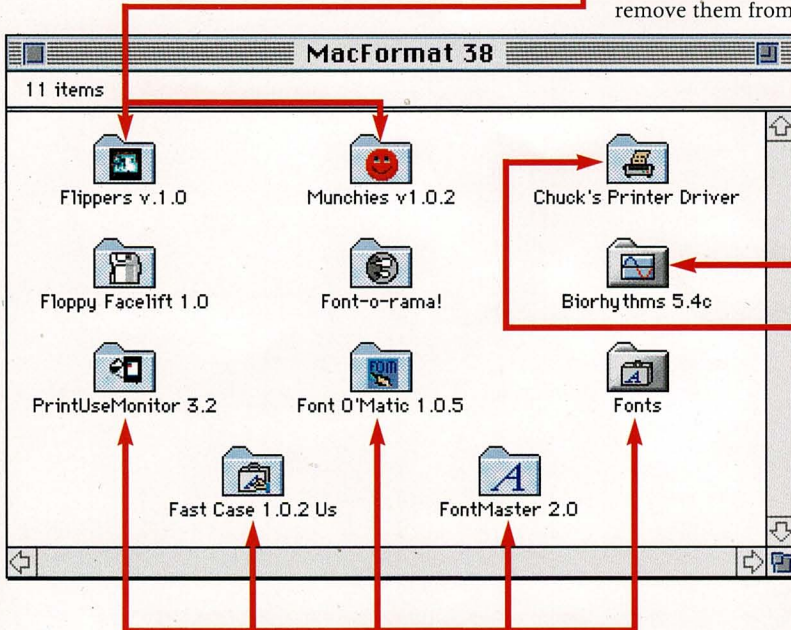
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*BABT Approved versions available

MACFORMAT

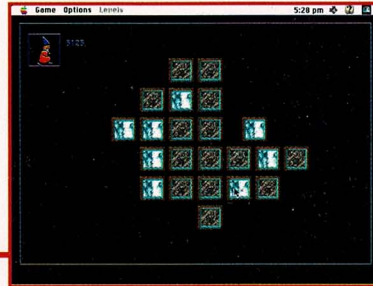
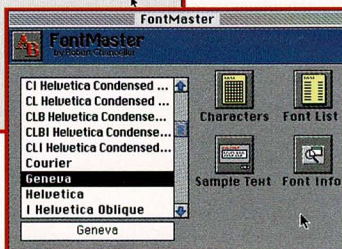
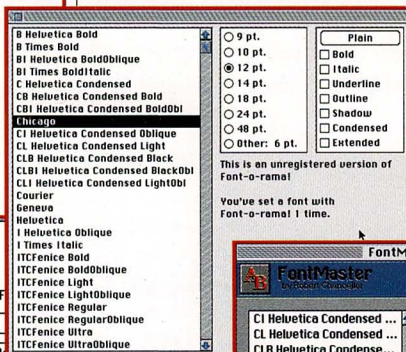
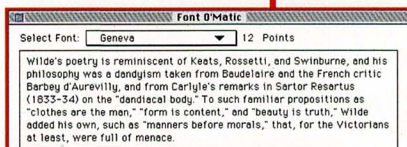
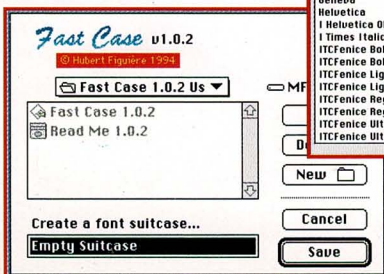
ON THE DISK THIS ISSUE...

To accompany our printing cover feature this issue, we've put together a collection of essential printing and font software to help you improve your output and manage your fonts. There are two great games to put you to the test, and even a biorhythms program to let you know you're going to have a bad day before it even happens.



PRINTING AND FONT SOFTWARE

First off we have four programs to help you organise and view your fonts. *Fast Case* enables you to organise your fonts into groups, while *Font O'Matic*, *FontMaster* and *Font-o-rama!* make it easy to view and print out fonts. There are also two complete free-ware fonts – AD Mono and FH-Holstein 2.1 – for you to add to your collection. *PrintUseMonitor* keeps a eye on how much printing you do and gives you a warning when your toner or inkjet cartridge is near to running out, so you can get your order in before you're left high and dry.



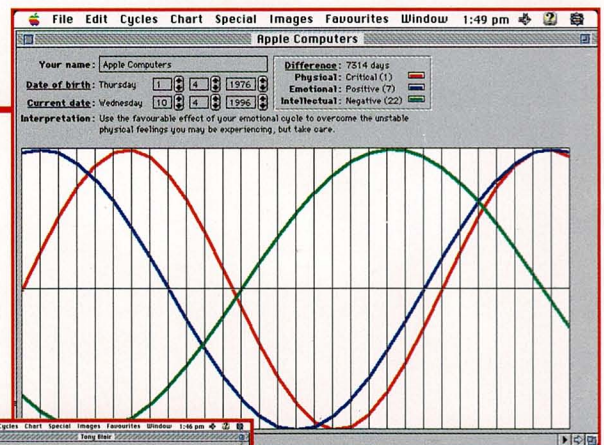
FLIPPERS 1.0

A really tricky puzzle game, *Flippers* is based on coloured tiles. When you click on a tile, it rotates to reveal a different pattern. You must try to group tiles with the same pattern in 3 x 3 blocks to remove them from the screen. Sounds easy? The challenge is that you can't let the tiles reach the edge of the screen, so you have to work fast to stay alive.



MUNCHIES 1.0.2

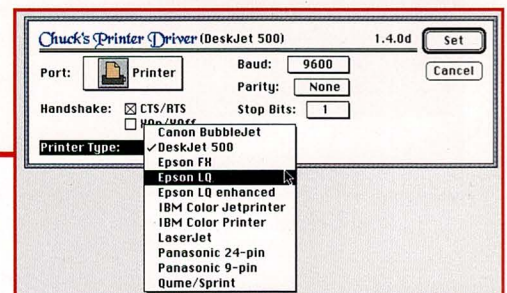
Manic eating action is in store with the arcade game *Munchies*. You take control of Melvin on his mission to eat just about everything in sight. Peas give you firepower and butter gives you cholesterol – just like in real life, really. Once you've cleared the plate you help Melvin leave the screen, then it's on to the next course...



BIORHYTHMS 5.4C

If you want to know what is happening to your body clock, *Biorhythms 5.4c* will help you keep track. This powerful software enables you to see your physical, mental and emotional highs and lows as far into the future as you want. Included with the program are over 100 sample charts of famous and infamous people.

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CHUCK'S PRINTER DRIVER

If you want to connect a dot matrix printer to your Mac, all you need is a cable to connect the printer to your Mac (try Tandy) and *Chuck's Printer Driver*. This easy-to-install software gives you full access to a wide range of printers, including the hundreds of Epson-compatibles you might have lying around.